

*cut*  
JANUARY 1919 ~ No 156

Monthly

A Reference for Buyers

HITCHCOCK'S  
**MACHINE  
TOOL LIST**

Distributed Free to Machine Tool  
Users Everywhere in the United States and to  
Dealers in American Machinery Abroad

Published by  
**A. H. HITCHCOCK**  
1220-1235 Caxton Building  
Chicago

# *Type T* Heavy Duty **RELIANCE MOTORS** *Direct Current*

## General-service Motors

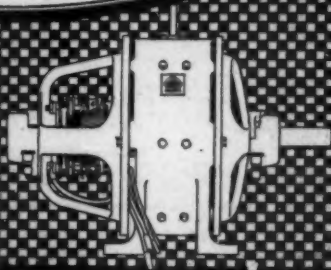
Type T Reliance Motors are designed for heavy general service purposes.

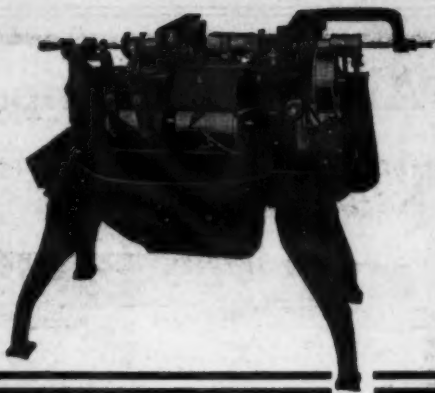
They are furnished in both the constant speed and adjustable speed types. Speed adjustments are obtained by field resistance control.

The details of these motors are described with 39 illustrations in our Bulletin 2014.

**Reliance  
Electric & Engineering Co.**  
1050 Ivanhoe Road Cleveland, Ohio

**BRANCHES:**  
New York Philadelphia Pittsburgh  
Chicago





## Built particularly for STUDS

The NAMCO Automatic Stud Threader is specialized for rapid and accurate threading.

Feeding blanks from the magazine and extracting the threaded pieces are accomplished at the same time. Non-productive movements are further eliminated by using NAMCO Automatic Opening and Closing Dies.

All non-cutting movements are quick and positive. Idle time is reduced to the minimum, and one man takes care of three machines.

For the lowest cost per piece use NAMCO Stud Threaders. Let us prove it. Estimates from samples.

*Capacities  $\frac{1}{4}$ " to 1" inclusive.*

## THE NATIONAL ACME CO.

NEW ENGLAND PLANT  
WINDSOR, VT.

Cleveland, O.

CANADIAN SCREW PLANT  
MONTREAL

*Branch Offices:*

NEW YORK BOSTON CHICAGO DETROIT ATLANTA SAN FRANCISCO  
WAREHOUSES—NEW YORK, CHICAGO With FOREIGN REPRESENTATIVES

*Makers of Gridley Single and Multiple Spindle Automatics at Windsor, Vt., and Acme Automatics, Threading Dies and Screw Machine Products at Cleveland, Ohio*

# Alert Roller Grip Stub Arbors



Be up to the minute! Get a 25% increased production! Adopt ROLLER GRIP STUB ARBORS for your work. Don't waste your time driving Mandrels in and out of your work, let a ROLLER GRIP do it. Forget your arbor press. Stub Arbors made in all sizes.

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*Send for circulars (SA).*

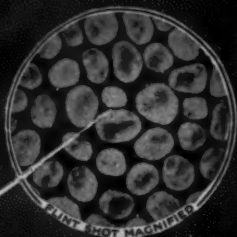
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**Alert Tool Company**

237 North 6th St.,

Philadelphia, Pa.





## **A recent meeting of the Steel Treating Research Society at Detroit was devoted to a study of Sand Blasting.**

The lecturer was the "Flint Shot Man." He showed slides to illustrate the remarkable progress of the sand blasting art.

To those heat-treating superintendents, foremen, engineers and experts he gave some new ideas for the use of the sand blast on raw and heat-treated materials to remove mill and furnace scale.

Figures given showing saving of tools and dies on steel thus sand-blasted were little short of startling.

Much of the information contained in his lecture, reflecting the practices in over 60 great American plants, is contained in our book—"*Little Journeys of The Flint Shot Man*"—send for it.

# **United States Silica Company**

1941 Peoples Gas Bldg.,

Chicago, Ill.

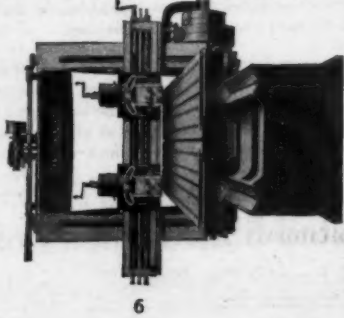
# Cincinnati Planers and Boring Mills

Are Heavy-Production, Big-Economy Tools

## Cincinnati Planers

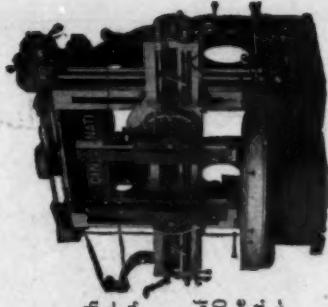
Variable Speeds } Equal  
Rapid Operation } Big Production  
Rigid Construction } Great Economy

Sizes 22" to 48" are regularly furnished with our patent T-u-speed Drive. Our Motor-Driven Planers provide 10 cutting speeds, with constant or variable return.



## Boring Mills

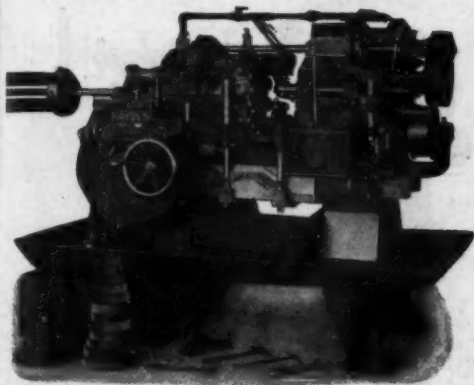
Cincinnati Rapid Production Boring Mills of the spur gear type are made in sizes 8, 10 and 12 ft. Boring and Turning Mills of the bevel gear type are furnished 5, 6 and 7 ft. These versatile tools are invaluable for machining work of large diameters.



*Write for specifications*

THE CINCINNATI PLANNER CO., Cincinnati, Ohio, U.S.A.

## Cincinnati Five Spindle Automatic Screw Machine



**Why not let this machine make money for you?**

Actual time per piece,  $2\frac{1}{2}$  to 36 seconds.

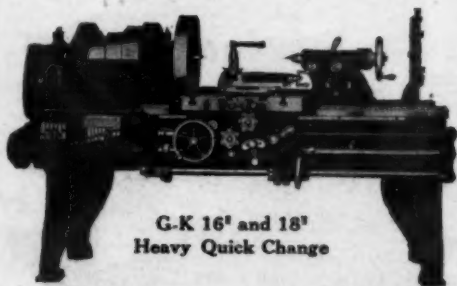
This up-to-the-minute machine has 16 spindle speeds and 20 changes of time to make one piece; nine tools can be operated together; starting and stopping lever on each side; four cross slides for circular tools—five longitudinal tool slides for turning, drilling, etc.

These are only a few of the 48 Superior Features incorporated in its design for insuring accuracy, convenience and a generous output—in other words, for making money.

*Write for Catalog, which explains fully*

**Cincinnati Automatic Machine Co.**  
**Oakley, Cincinnati, Ohio**

## From 16 to 30-Inch G-K Engine Lathes



G-K 16" and 18"  
Heavy Quick Change

Take a high-grade lathe of the best quality, and add "G-K Betterments," and you have a G-K Engine Lathe.

"G-K Betterments" mean a number of practical things, for greater convenience and accuracy, for taking heavier cuts, for turning out more work.

The bed is constructed and reinforced to absorb all torsions. The headstock is better braced. The long tailstock marks a decided advance—stands all the power, without strain, that can be delivered. Headstock and tailstock are back of center line of bed, always bringing tool pressure inside the V's.

These are samples of "G-K Betterments"—all real improvements. The Catalog tells of more, and describes each one fully.

*Write for Catalog, showing "G-K Betterments"*

### The Greaves-Klusman Tool Co.

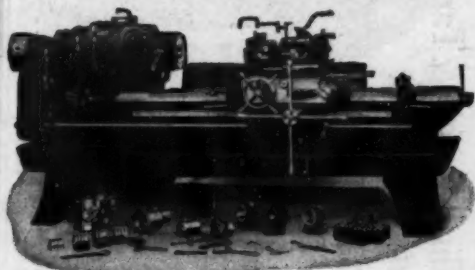
Cincinnati, Ohio, U. S. A.

**Cincinnati-Acme**

## Flat Turret Lathe

### The Most Rigid Turret Lathe Made

For Both Bar and Chucking Work



**3¼"x36" Cincinnati-Acme equipped for bar work**

This machine has solved many a knotty problem in the machining of small parts, and has made some most enviable production records.

We would like to tell you about them, and at the same time take up with you the matter of its adaptability to *your* requirements.

It is a rapid and accurate producer of an unusual range of both bar and chucking work, and you may find it to be just what you need to insure the desired output at a satisfactory cost.

*We shall be delighted to discuss it with you  
No harm in asking, and there's no obligation*

## The Acme Machine Tool Co.

Cincinnati, Ohio, U. S. A.

# Rockford Horizontal Drilling, Boring & Tapping Machine

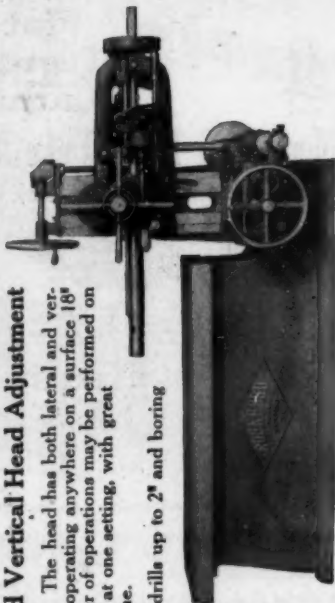
## With Lateral and Vertical Head Adjustment

The table is stationary. The head has both lateral and vertical adjustment, the spindle operating anywhere on a surface 18" high by 36" wide. A number of operations may be performed on heavy and odd shaped work at one setting, with great accuracy and economy of time.

Capacity for high speed drills up to 2" and boring up to 6". Considerably larger tools may be used by avoiding the coarse feeds.

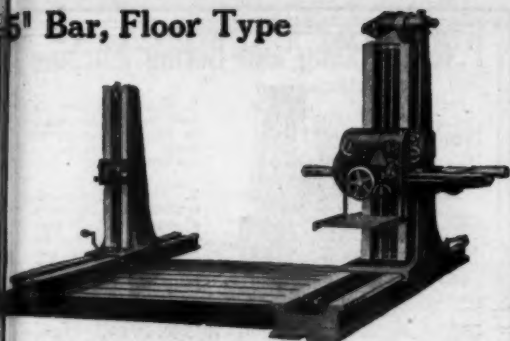
Made extra heavy and durable. A choice of six driving combinations.

*Write for complete specifications*



**THE ROCKFORD DRILLING MACHINE CO., Rockford, Illinois**

## 5' Bar, Floor Type



## A New horizontal boring mill that's bigger and better

**A** SUPERB TOOL of ultra-modern convenience and productiveness. In general design it conforms to the latest and best of machine shop practice, but in addition we have embodied a number of original improvements which easily put this "big fellow" in the front rank.

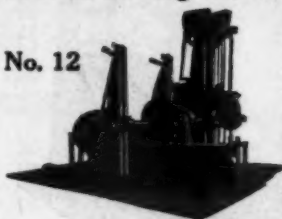
It is thoroughly complete for the performing of any or all of the necessary operations, such as boring, drilling, milling, tapping, threading, facing, turning and slotting. It works rapidly and accurately on jobs of every size—the floor plate measures 8'x12'. It's a real cost reducer.

*We have printed a complete description in a handsome Booklet. Send for your copy*

**Giddings & Lewis Manufacturing Co.**  
Fond du Lac, Wis., U. S. A.

## P. & H. Drilling and Boring Machine

No. 12



1. Rapid traverse in each direction can readily be manipulated by slight adjustments on the hand wheel.

2. The spindle speeds are obtained by quick change gears and variable speed motor for either A. C. or D. C. current resulting in the following speed variations:

A. C. Current, 12 to 542 R. P. M.

D. C. Current, 10 to 445 R. P. M.

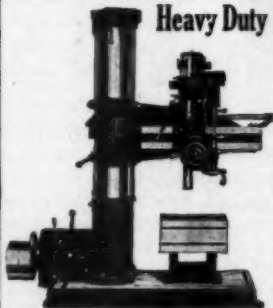
3. The four changes of feed available for each speed are made by the operator without leaving his position near front end of spindle.

**Pawling & Harnischfeger Company**

Milwaukee, Wisconsin

It will be worth your while to carefully consider these distinctive features of the

### Heavy Duty Mueller Radial Drill



Patented Stationary Column.

Combination Positive and Friction Feed.

Effective, yet extremely simple control.

Combination Low and High speed reverse for backing out taps.

And many others which this space will not permit us to enumerate.

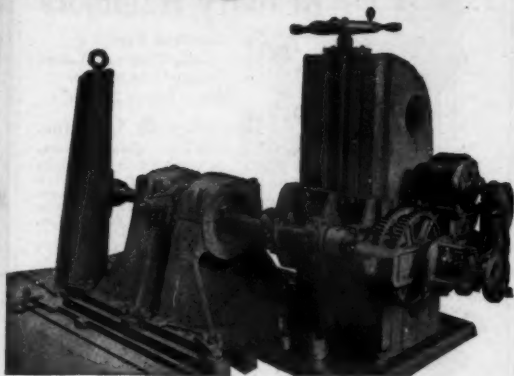
**The Mueller Machine Tool Co.**

Radial Drills and Lathes

Cincinnati, Ohio



# A Shop Picture



## Pedrick Column Boring Machine

just as it appears at work without giving the artist a chance to make it look prettier.

It's all there, 3 feeds automatic, quick hand movement of bar, motor drive with variable gearing for different speeds, strong, powerful and accurate.

You will search in vain for complication or a lot of elaborate details. These parts were purposely omitted. Simplicity, moderate price and all the mechanism necessary to do the work are the features you will find.

*For further information, we refer you to our circular  
Why don't you ask for it?*

## Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

Mfrs. Portable Boring Bars, Crank Pin Machines, Pipe Benders,  
Portable Millers, etc.



## Beaudry Hammers

**For General Forging**  
Saves Fuel, Time and Labor.  
Cuts Forging Costs in Two.

*Belt or Motor Driven*

### Beaudry & Co., Inc.

141 Milk St., Boston, Mass.

**SALES AGENTS**—The Machine Tool Engineering Co., Inc., New York City; Brown & Zortman Machinery Co., Pittsburgh, Pa.; W. M. Pattison Supply Co., Cleveland, O.; Eccles & Smith Co., San Francisco and Los Angeles, California; Hallidie Mchy. Co., Inc., Seattle, Wash.; The Portland Mchy. Co., Portland, Ore.; Alfred Herbert, Ltd., Coventry, Eng.; London, Paris, Calcutta, Yokohama; Sherritt & Storer Co., Philadelphia, Pa.; The English Tool & Supply Co., Kansas City, Mo.; The E. L. Essley Mchy. Co., Chicago, Ill. and Milwaukee, Wis.



**It's Portable**

## "As You Like It"

IF you like the music of the hammer on the anvil, as the smithy turns out his "bit" of tool dressing, forging, etc., each day—we admit it sounds like old times—very old.

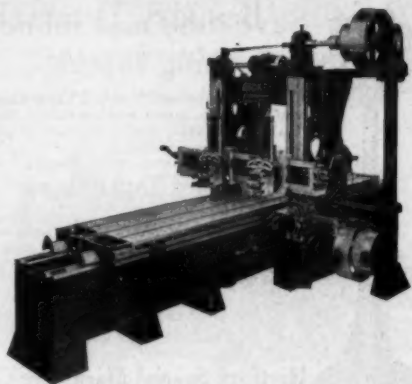
We would merely suggest that a BARR Pneumatic Hammer with one man, will do many times the work, and it will sound like business.

If you like to see equipment crowded with work—we admit it looks good—but is it?

We would only mention that a Barr Pneumatic Hammer will relieve your larger hammers of the light work, increasing their production in an inexpensive way.

**You need this tool! Bulletin 10H.**





## 36"x36"x12' Bickett Metal Planer

**T**HIS PLANER is built in the following table lengths: 8, 10, 12, 14 and 16 feet. The Planer is equipped with one Head on the cross rail, equalized Table Lubrication, Aluminum Driving Pulley and necessary Wrenches. Second Head on rail and Right and Left-hand Side Heads quoted on request.

The arrangement for the belted motor drive as illustrated is so arranged that motor can be attached either by flexible coupling or by set of gearing. Flexible coupling and gearing are furnished at an extra cost.

You will note in our countershaft mounted on top of the housing of our planer, in addition to its very rigid construction with a separate pedestal extending to the floor, it has means for adjustment to tighten the belts as they stretch under strain, also means for adjusting countershaft in proper mesh with the motor gear. This feature we believe to be novel and substantially important. The shaft bearings are of ring oiling design.

The style motor and speed of same is left optional to the purchaser of the planer, as we furnish no electrical equipment, except when ordered, for which we can quote upon request.

**The Bickett Machine & Mfg. Co.**  
Cincinnati, Ohio, U. S. A.



## Save time and money in turning tapers

Those who have used Hartford Taper Gages would not turn tapers without them. They regard them as one of their standard, matter-of-course measuring devices.

### Hartford Taper Gages

should have a place in every shop and department where tapers are turned. You would never be without them if you were posted as to how these inexpensive devices really expedite work.

*May we post you?  
Just say the word.*

**Hartford Special Machinery Co.**

285 Homestead Ave.,

Hartford, Conn.

## The Amplifying Gauge

With our Amplifying Gauge you can throw away 75 per cent of your snap gauges, which, at best, leave you to guess how much over or under size a piece may be.

The Amplifying Gauge shows every inaccuracy in ten-thousandths of an inch, replacing guess-work with certainty.

Parts of any shape, when the Gauge is set with a model or standard, may be accurately gauged as fast as the workman can handle them.

Used with satisfaction by the U. S. Government and in large automobile plants.

*Write for Illustrated Bulletin*



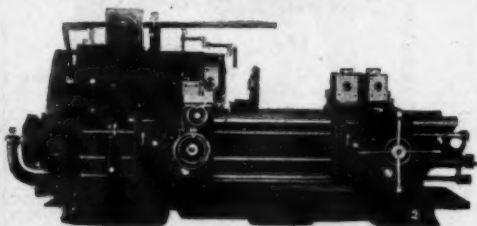
**THE NORTH SIDE TOOL CO., Dayton, Ohio**

# STEINLE TURRET MACHINE CO.

## MADISON, WISCONSIN

Originators of the Heavy Duty Full Swing Side Carriage Turret Lathe

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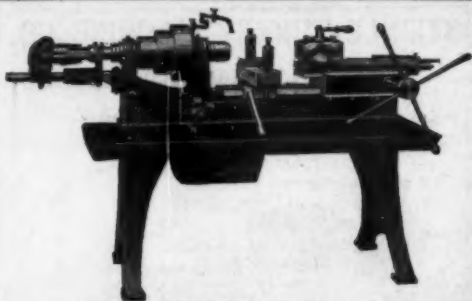
Standard Steinle 24" Full Swing Side Carriage Turret Lathe with  $6\frac{1}{4}$ " Hole through Spindle as Arranged with Motor Drive

The machine shown above is the superior of any heavy duty turret lathe on the market as a general purpose machine. It has exclusive features that are invaluable and permit of better tooling arrangements than can be applied to any other machine of this character, thereby greatly increasing efficiency in point of quality and quantity of production.

Manufacturers of tractors will find this Steinle 24" Full Swing Side Carriage Turret Lathe a great producer of such parts as cylinders, where same are cast singly, pistons, piston rings, fly wheels, gear blanks, sprockets, axle housings, differential cases, hubs, etc.

Many of the principal manufacturers of tractors, trucks, aviation motors, marine gas engines, and stationary engines are counted among our customers, and repeat orders from practically all have demonstrated the gratifying results obtained from the use of our machines.

On receipt of your drawings we shall be pleased to submit production estimates and full information.



**MODEL "D"**

## **Turret Lathes and Screw Machines**

**Now Ready for Delivery**

**Designed for Rapid Manufacturing of  
Parts Requiring Several Operations**

### **MADE IN FOUR SIZES:**

- No. 2 {  $1\frac{1}{8}$ " Wire Feed Capacity, Plain Head  
           $1\frac{3}{8}$ " Hole Through Spindle.
- No. 3 {  $1\frac{5}{8}$ " Wire Feed Capacity, Plain Head  
           $1\frac{3}{4}$ " Hole Through Spindle.
- No. 4 {  $1\frac{7}{8}$ " Wire Feed Capacity, Geared Head  
           $2\frac{1}{8}$ " Hole Through Spindle.
- No. 5 {  $1\frac{7}{8}$ " Wire Feed Capacity, Geared Head  
           $2\frac{3}{8}$ " Hole Through Spindle.

**With or Without Power Feed to Turret Slide.  
Mechanically Perfect and Fully Guaranteed.**

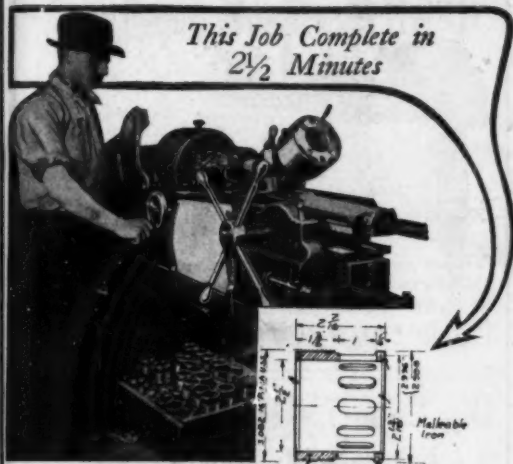
**Manufactured By**

**Smurr & Kamen Company**

**328-330 N. Albany Ave., Chicago, Ill.**

## THE TILTED TURRET

A CLEAR TRACK — THE STOCK



## The TILTED TURRET MACHINES

are **accurate** and **productive**.  
Fifteen years' of thoroughly  
tested service. A size for  
every class of manufacturing.

Ask the User

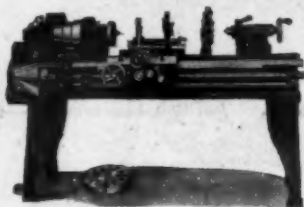
Catalog "H"—Its Free

WOOD TURRET MACHINE CO.

BRAZIL, INDIANA, U.S.A.

## The "Filsmith" Modern Lathe

Has Great Power for Its Rated Swing



3-Step Cone  
Double Back Gear  
Q. C. Gear Box  
Any Length Bed  
14" and 16" Swing

"Filsmith" quality means superior workmanship, the very best materials—plus some new features that aid production. Write for the specifications of this dependable tool.

**PHILIP SMITH MFG. CO., SIDNEY, O.**

## Big Capacity for Plain Work

Fultons Satisfy Manufacturers



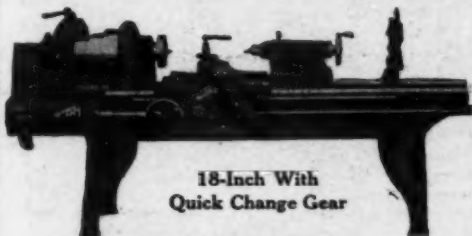
18 $\frac{1}{4}$ "x7'—Friction Head

A plain tool of honest worth, for plain turning, boring and facing, which usually comprises 75 per cent of all lathe work. It's high grade and high powered, without the expensive extras, saving you from \$150 to \$200 in price. Write for specifications.

**Fulton Machine Tool Co., 1438 Bryan Pl., CHICAGO, ILL.**



## Critical Users Like The Super-Quality "CHARD"



18-Inch With  
Quick Change Gear

The hardest-to-satisfy users—those whose demands call for what practically amounts to a super-quality—are the warmest in their praises of the "Chard."

An experience of over 35 years in building high-grade lathes has taught us a good deal about what critical users demand, and in the "Chard" we have given it to them.

They like it for the ease, speed and accuracy with which it handles heavy work—its ability to save time, stimulate output, and make money for them.

*Claims are claims and proof is proof. We are ready to prove up on sizes 16", 18", 20", 24" and 28".*

## Chard Lathe Company Newcastle, Ind.

### DOMESTIC DISTRIBUTORS

THE F. O. STALLMAN SUPPLY CO., San Francisco, Cal.  
VONNEGUT MACHINERY CO., Indianapolis, Ind.  
ENGLISH & MILLER MACHINERY CO., Detroit, Mich.  
OGDEN R. ADAMS, Rochester, N. Y.  
THE W. M. PATTISON SUPPLY CO., Cleveland, Ohio.  
J. S. MILLER MACHINERY CO., Pittsburgh, Pa.  
MONARCH MACHINERY CO., Philadelphia, Pa.  
DALE-BREWSTER CO., Chicago and New York.

# Monarch Lathes

give universal satisfaction to the user. They have been doing this for years, and this accounts for the ever increasing demand for **Monarch Lathes.** Built in four sizes and in all styles and with any attachments desired.

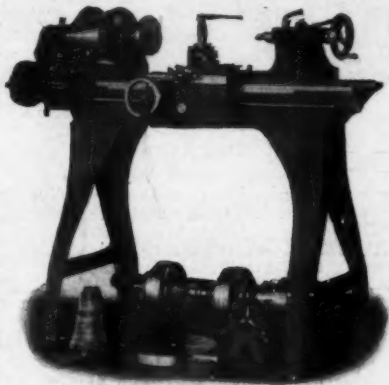
*Sold by a leading Machinery Dealer  
in every machinery center.*



## The Monarch Machine Tool Co., Sidney, Ohio

# The "Worcester"

For Users who Appreciate the Economy  
of High Quality in their Small Lathes



## 11" Worcester—Compound Rest and Power Cross Feed

It takes a good deal more thought and care, and a certain amount of pride in one's product, to make a really high-class lathe; and in the building of small lathes there is often too much tendency to let down a little bit.

We take fully as much pride in the perfection of our 11", 13" and 16" lathes, on which sizes we specialize, as if we were building the largest and most powerful tools; and as it costs so little more in cash outlay to make a lathe right, and as it gives so much better service when it is right, our policy is to spare no pains to make the words "Worcester Lathe" synonymous with "lathe quality."

*If you want GOOD small lathes, let us hear from you*

**Worcester Lathe Company**  
68 Prescott St., Worcester, Mass.

# Crawford Lathes



**15" Tool Room Lathe**

Made for a discriminating trade and to give satisfaction under the most exacting conditions.

**Crawford Machine Tool Co., Inc.**  
21 Park Row, New York

## Sidney 15", 17" and 19" Lathes

**Unequalled for High Duty Service**



Here's a lathe that combines efficiency, accuracy and rigidity—the kind of a tool that stands up to the heavy grind day in and day out, and is always found dependable. Furnished with or without accessories.

*Let us send you the specifications*

**THE SIDNEY TOOL CO., SIDNEY, OHIO**

**"THE SMALL LATHE FOR THE BIG JOB"**

# "DALTON SIX"

**METAL WORKING  
LATHE**

*Actual Swing 7 1/4 Inches*

**MODEL TYPE "B-4"**

**30 OR 36 INCH LENGTH OF BED**



Standard Machine  
Mounted with Standard  
Type High Legs



Super Attachment Fits  
any of our Machines



Standard Machine  
Mounted with Cabinet  
Type High Legs



Standard Bench Machine  
Mounted with  
Motor Drive



Standard Bench Type



Standard Machine Showing  
Jaw in After Center with  
Cutter & Taper Attachment



Standard Machine, High  
Legs, with Wheel and  
Lever Type Tail Stock



Standard Machine  
with Foot Power  
Mounting



Motor Driven Machine  
with Cabinet High Legs,  
Housing, Rotating Wheel

MANUFACTURED BY  
**DALTON MANUFACTURING CORPORATION**  
NEW YORK, U.S.A. CABLE ADDRESS "ALEDAL" NEW YORK.

**COMPLETE BULLETINS SENT ON REQUEST**

## ATLAS—For Your Heavy Work



Quick Change, Double Back Geared  
Made with 8, 10 and 12 ft. Beds, or  
longer made to order. 20 and 24" Swing.

The Modern Atlas Lathe has the same characteristics as old Atlas, the super-man of ancient lore. Build, solid. Strength, extraordinary. Endurance, top notch.

*Write for details of this reliable Lathe*

**The Taylor Machine Co.,** Cleveland, Ohio

## Can Absolutely Guarantee

The highest degree of accuracy obtainable  
in 10" Universal Index Centers



In our many years of experience and specializing on Index Centers, we have developed many special machines, fixtures and testing tools for making our Index Centers accurate.

**PROMPT DELIVERY**

**DICKOW**

Patents Pending

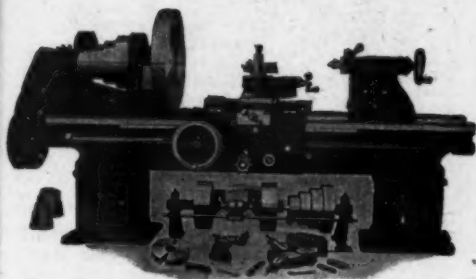


**For Accuracy Get Dickow's**

*Sold by dealers. Write us today.*

**Fred. C. Dickow, 35 So. Desplaines St., Chicago, Ill.**

# South Bend Lathe



**24 in. x 10 ft. Screw Cutting Engine Lathe.**

South Bend Lathes are made in six sizes—13", 15", 16", 18", 21" and 24" swing, with beds from 4' to 16' in length. Furnished with either straight or gap bed.

South Bend Lathes have been on the market twelve years. Over 19,000 in use. Dealers in every large city.

Many large, busy plants are increasing their production by using South Bend Lathes on duplicate work.

*Send for free Catalog illustrating and describing entire line*

**South Bend Lathe Works**

*Established 1906*

**South Bend, Ind.**

*East End*



*We manufacture a great variety*  
**Lathe Chucks, Drill Chucks, Centering Chucks**  
*Also*  
**Portable Jaws for Lathe face plates and Machine tables.**

*Let us send you our Catalog*

**The Cushman Chuck Co.**  
*Established 1862* *Hartford, Conn.*

Patented Jan. 30, 1917



## Automatic Extension Reel

**Makes Extension Lights Safe**

No wires laying around in the way—no lamps broken—no insulation ragged out—no short circuits.

This handy little reel is only 9 inches in diameter and 2 inches wide. Holds 25 ft. of reinforced cord. Turns on a swivel. Can be locked or released automatically with a movement of the hand. Eliminates fire risk—cuts insurance cost. Approved by the Underwriters.

*Write for catalog.*

**The Cincinnati Specialty Mfg. Co., Inc.**  
**Manufacturers,**  
 1913-21 Powers St., Cincinnati, Ohio



# **FREE**

## **Practical Information**

**Pertaining to**

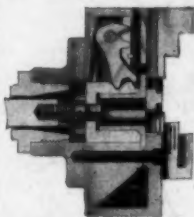
## **Magnetic Chucking**

A bookful of illustrated information of especial interest to manufacturers seeking to quicken and cheapen the cost of machining work that can be advantageously handled with the magnetic chuck. We have brought together in our new 1919 catalogue a mass of illustrations and text showing how *magnetic chucks may be used on millers, planers, lathes and grinding machines*, and how they are now employed to facilitate difficult machining operations and to reduce the cost of work. It is more than a catalogue; it is really a manual of magnetic chucks, which it will pay every machinery manufacturer to study carefully.

*We shall be glad to send a copy free, if you will favor us with your address. No obligation.*

**The Heald Machine Company**  
Worcester, Mass., U. S. A.  
Makers of Grinding Machinery and Magnetic Chucks

## AMERICAN Air Operated Chucks



Adaptable to all types of machine tools and to all classes of work. The instantaneous action, positive grip and great ease of operation all combine to save time and cut costs.

**Special features:** When the air cylinder draws the bushing back, the sector lever is forced up the incline of cam (see cut), causing a binding effect and insuring a positive grip by the jaws; a grip that can be retained independently of air pressure. The American gives greater gripping power with one third less air consumption.

The American Chuck makes it possible for women operators to run the heavier machines and secure the same output as the men operators. Glad to mail you full details.

**Neidow & Payson Company**

9 South Clinton Street, Chicago

*General Sales Agents*

## Draw-in and Thrust Chucks

for Tool Room Lathes and Screw Machines. Look for the name "Hardinge Brothers" and write us. And did you ever ask us to make those—

### Screw Machine Collets

with regular or irregular holes? We are prepared to make good deliveries. Why not try us next time? Quantities never too small or too large to interest us.

*When making inquiry, kindly refer to "Chuck Department"*

**Hardinge Brothers, Inc.**

Chicago, Ill.

# Sweetland Lathe Chucks

Grip Quickly and Stay Gripped



No lathe is better than its chuck.

An inferior chuck will impair the efficiency of the best of lathes, while a "Sweetland" will enable the operator to get out of any lathe the best there is in it.

"Sweetlands" have exceptional adaptability, they grip quickly and stay gripped under the heaviest cuts, and they run true, even after years of the hardest service.

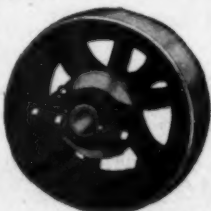
Equip your lathes with "Sweetlands" and forget your chucking troubles.

*Catalog No. 11-C describes all kinds and sizes  
Better have it on file for convenient reference*

**The Hoggson & Pettis Mfg. Co.**

New Haven, Conn., U. S. A.

## Carroll Clutch Develops More Power



It is built for high speed. The metal to metal disc type. It grips the pulley with full contact from edge to edge, delivering full engine capacity at a minimum cost of horse-power. Being free from weak points, delivers long and continued service with increased output and profit. Where Carroll Clutches are used, shut-downs for replacement, adjustment, and repairs, with consequent idleness of profitable machines, are conspicuously absent.

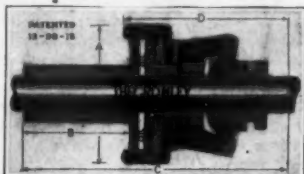
**Self-Oiling Double Adjustment Is Original In Design**

*Write today for details      Simple—Strong—Guaranteed*

**L. W. CARROLL MFG. CO., Batavia, Ohio**

## National Heavy Duty Clutch

**Has A Guaranteed Greater Pulling Power**



**Note the principle —friction wedge plates. No wood, fiber or other substance required.**

This modern clutch is successfully used with machine tools, mining machinery, cement mills, woodworking and agricultural machinery. Will pull more, size for size, than any other. Let us quote you on your next year's supply.

**National Clutch Co., 1859 Fulton St., Chicago, Ill.**

# Takes Less Time Between Cuts

**Barker Wrenchless Chuck Speeds Up Work**

**Independent  
Universal  
and Self-  
Centering**

**I**T WILL PAY YOU to use this Chuck because it is as quick as an air chuck, without the attendant cost of installation, pumping of air, and the maintenance of air line. It holds delicate work as lightly as desired and the more substantial work with an unshakable grip, governed by the lever pressure, which a child could operate.

Also highly efficient for bar work, easily changing from one size bar to another. It's dependable for any type of work that is done on turret, engine lathes or semi-automatics.



*Our  
illustrated  
Booklet  
gives  
full  
details.*

*Write  
for  
your  
copy*

**BARKER CHUCK DIVISION**

**THOMAS ELEVATOR CO., MFRS.**

**22 S. Hoyne Ave.,**

**Chicago, U. S. A.**

**Be Ready For The Call**



2509 BEEKMAN STREET

**Manufacturers of Friction Clutches Since 1895**

**"You cannot make a silk purse  
out of a sow's ear"**



**Enclosed Type, Self-Oiling**

A silk purse has "the stuff"  
in it, or it isn't a silk purse.

**Edgemont  
Friction Clutches**

have "the stuff" in them, or  
they would not be selected  
by the leading machine tool  
builders (names on request)  
as their standard, and used  
by them year after year with  
the highest degree of satis-  
faction.

*Write for Catalog of "The Clutch that's stood the test"*

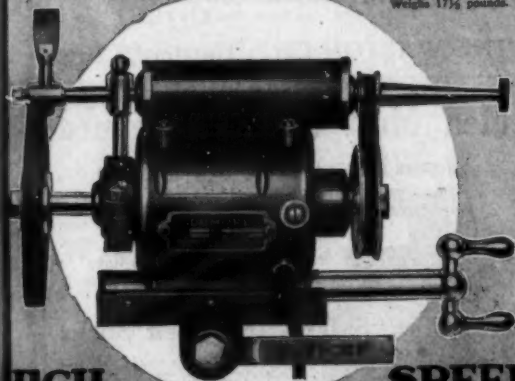
**The Edgemont Machine Co.  
Dayton, Ohio**

**Special Clutches and Transmission Machinery for all purposes**

*There's what good tools  
did for us!*

**EQUIPMENT A**

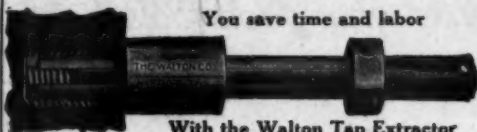
For general tool room use.  
Includes High Speed In-  
ternal Spindle A with reach  
of 3 inches. 30,000 R.P.M.  
Comes fully equipped.  
Weights 17½ pounds.



**HIGH SPEED  
GRINDERS**

## Why Treble Your Loss?

You save time and labor



With the Walton Tap Extractor

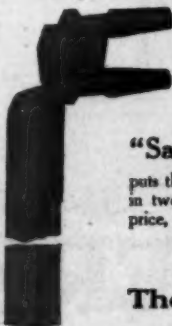
When, after a tap is broken, you quickly remove it with a Walton Tap Extractor—the loss stops right there. If your men are not so equipped it means that a high-priced mechanic has to spend a lot of his valuable time removing the “remains”, and all the while the work is being delayed.

*The Walton removes taps without injuring the threads. A 60-day free trial of any size from No. 8 to 1¼"*

**THE WALTON CO., Hartford, Conn.**

## Men Must Not Be Maimed

Safeguard Them with “Safety First” Belt Sticks



YOU cannot afford to leave undone anything that will protect your men from injury. Putting belts on moving pulleys with “any old thing” is dangerous, and may prove extremely costly. The low cost of

**“Safety-First” Belt Sticks**

puts them within everybody's reach. Made in two sizes, 1" to 4" and 4" to 6" at one price, only \$1.25 each or \$12 a dozen.

*Order a few on trial and side-step that accident*

**The Ready Tool Co.**  
Bridgeport, Conn.



**Does difficult  
work with ease  
and great ac-  
curacy** →



## **Knight Milling and Drilling Machines**

equal three ordinary machines because they have unusual convenience and capacity. For milling, boring or drilling, or for any two or all three of these operations at a single setting, at almost any desired angle, these machines are time and labor savers of the first class.

They operate either parallel with the plane of the table, at a right angle to it, or at any intermediate angle. All adjustments are quickly and easily made. Whether used on your regular run of work, or on special and very exacting jobs, Knights always give thoro satisfaction. Three sizes.

**W. B. Knight Machinery Co.**

**3920 W. Pine Blvd., St. Louis, Mo.**

*Write for a  
copy of our  
interesting,  
illustrated  
Booklet*



## Bench Drills

with 1 to 4 Spindles  
 $\frac{1}{2}$ " Capacity.

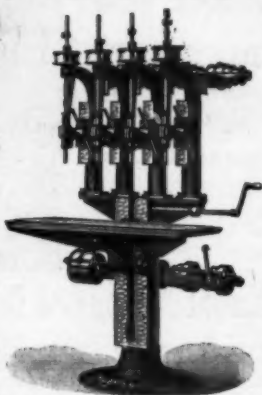
## Floor Drills

1 to 7 Spindles  
 $\frac{1}{2}$ " to  $\frac{3}{4}$ " Capacity.

Power feed on as many  
spindles as you want.

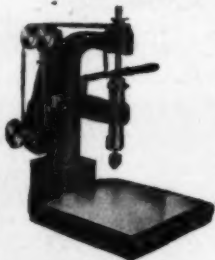
## Francis Reed Co.

43 Hammond St.,  
WORCESTER, MASS.



## "Fenn" High-Speed Sensitive

15,000 R. P. M.—SKF Ball Bearings



A high-grade, carefully built  
tool, for the largest output of  
fine work.

Instead of the usual rack and  
pinion, the feeding is done with  
a lever direct connected to the  
spindle sleeve. This provides  
a more sensitive control, which  
assists the operator very materi-  
ally in both the quantity and  
quality of his production.

A tool of peculiar merit.

*Description and price ?*

**FENN MANUFACTURING CO.,**

**Hartford, Conn.**

Cable Address "Fenn." West. Union Code  
W. L. Fenn. W. A. Fenn.

## Speeding-Up War-Work

# Hammond High-Speed Sensitive Radial Drills

Minutes—even seconds count when you are doing light drilling and tapping. If your mechanics spend their time moving heavy parts each time they drill or tap a hole, they are cutting your production and profits.

With a "Hammond" they move the tool from place to place instantly—anywhere within a 48" circle. They move the tool and not the work. The operator's time is spent in production—not in doing laborer's work at mechanic's wages.

*Write and find out how you  
can cut your light drilling  
and tapping costs 25 to 33%*



**The Hammond Mfg. Co.**  
**Cleveland, Ohio**

# Improve Your Production

## With the "Apex" Center Drill and Countersink



**I**T IS MONEY in your pocket to have your lathe operators use this simple, inexpensive device. It not only simplifies their work, but enables them to do a better job in less time.

The added countersink allows of facing work clear to the center without the use of half centers, or the rather delicate operation of partially withdrawing the tail stock spindle.

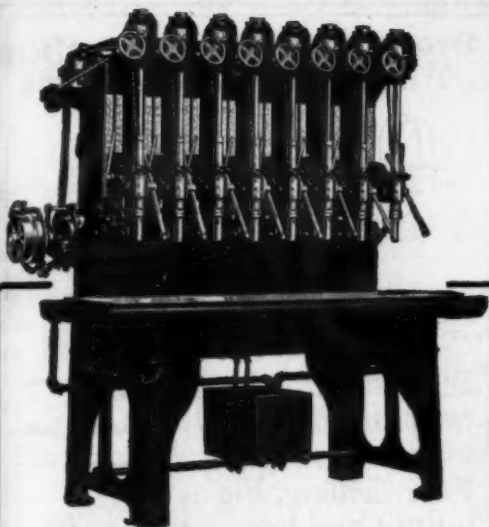
The "Apex" also enables the operator to face work without reference to other turning operations, as facing does not change the real center. This often saves several handlings of the work and changing of tools and dogs.

In short, the "Apex" saves time, insures uniform centers, eliminates guesswork, reduces breakage and improves the appearance of the work. Order one now—you'll order more later.

## The Apex Drill Company

2455 W. McMicken Ave.,

Cincinnati, Ohio



## Henry & Wrights 1 to 8 spindles, for $\frac{1}{4}$ " Drills & Smaller

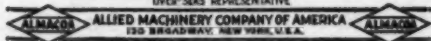
From the smaller shops with one or more of our machines up to the larger plants, one of which has over 2,300 H. & W. drilling spindles in operation, come reports of maximum output.

The gearless power transmission with frictionless bearings is one feature which alone insures faster drilling and longer wear; it is really revolutionary in its efficiency. The Catalog describes other special and patented H. & W. features and contains a valuable Speed and Feed Chart.

*Write for a copy—it's free, and no obligation.*

**The Henry & Wright Mfg. Co.**  
760 Windsor St., Hartford, Conn.

OVER-SEAS REPRESENTATIVE



*Principal Foreign Offices: Paris, Turin, Zurich, Barcelona*

## Sellew Adjustable Drill Heads



effect a big saving  
and increase output  
where it is possible  
to drill three holes  
at once.

Special Heads  
made to suit your  
work.



*Let us figure  
on your needs*

**Sellew Machine Tool Company**  
Pawtucket, R. I.



## "Buhr" Drill Heads

Adjustable and Fixed Center  
All-Ball-Bearing

Adjustable from 2 to 12  
spindles.

Fixed center, any number  
of spindles.

We guarantee our Heads  
to stand up to capacity.

**Nelson-Blanck Mfg. Company**  
Detroit, Mich.



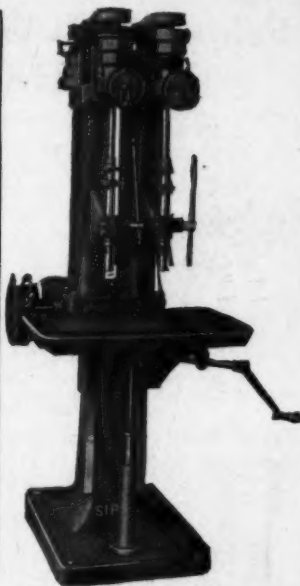
## FEATURES

**Quick  
Change Speed**  
Change in 2 seconds

**Most  
Efficient Drive**  
No belt troubles

**Safety First**  
All parts protected

**Heaviest  
Drill Made**  
Yet very sensitive  
**All Ball Bearings**



**What  
Users  
Say:**

A. T. Hinman, Inc., Philadelphia,  
Pa., says:

"We are pleased to advise  
that The Sipp is undoubtedly  
the best drilling machine we  
have in our shop."

*Write for Bulletin No. 4 telling why*

# The Sipp Machine Co.

Keen Street, Paterson, N. J.

## Eclipse Self - Tightening Drill Chuck



Roller bearing.

Quickest and easiest grip, and it never slips.

Self-tightening. No keys or wrenches. Thumb and finger are all the tools required.

It has no rival in its combination of quick and firm gripping, easy release, simplicity and accuracy.

Saves time and money on high speed drills, screw machines, automatic and turret machines.

*You need it now. Why wait?*

**Nielsen-Barton Chuck Co.,** 106 S. Jefferson St. CHICAGO, ILL.

Also makers of Arbors for all kinds of Chucks

**YOUNG, CORLEY & DOLAN, Inc.,** 115 Broadway, NEW YORK CITY  
*New York District Agents*



## Difficult tapping made easy and safe

Woodstock Improved Safety Tapping Chuck has revolutionized tapping in many shops. Successful in tough metals, blind tapping and bottom tapping in shallow holes, where a stop on machine is worthless.

For over three years it has been solving many hard tapping problems, and could also solve yours. Made in five sizes.

*Ask us to send one on trial for that extra difficult job*

**Peter Bros. Mfg. Co.**

115 Railroad St., Algonquin, Ill.





## Silver 20" Upright Drill

THE SILVER 20" Drills are built in four styles—plain lever feed, lever and wheel feed, power feed and automatic stop, and with back gearing—each with either round or square base. Also furnished in 2, 3 or 4-spindle gangs.

The large numbers of these machines used in the traveling machine shops on trucks in France, demonstrated their high efficiency under the hardest conditions.

*Complete description upon request—20" or 25" or both*

**The Silver Mfg. Co. 295 Broadway, Salem, Ohio**



## Murchey Tools

### Quicken Production

You also obtain perfection in threading by using Murchey Collapsing Taps and Expanding Die Heads. They always do the work to satisfy the most exacting inspector.

You will find Murchey Tools simple in design, quick in adjustment, speedy in operation and dependably accurate in results.

*Let us have your first order now, the others will follow as a matter of course.*

**Murchey Machine & Tool Co.**  
58 Porter Street, Detroit, Mich.



## PRODUCTION

### NICHOLSON

#### EXPANDING MANDREL

One set of nine Nicholson Expanding Mandrels affords an instant fit for any hole—round or square—from one to seven inches. Quick to insert; quick to remove.

No hunting around for a different Mandrel for every job.

Your machines will be producing every minute.

Put "Nicholsons" on the job in your factory.

Write now for free 30-day trial—there is no obligation involved.

**W. H. Nicholson & Co.**

117 Oregon St., Wilkes Barre, Pa.

## INCREASED

# The "Aurora"--21 to 36"

## The Drill With the Pull

The work is done at the drill point.

Its large pulley diameter and gearing ratio give the "Aurora" exceptional pulling capacity or power at the drill point--greater, we believe, than on any other drill made.

This claim is well supported by both expert opinion and production records.

The large table bearing prevents tilting if the operator forgets to clamp it. Worm wheel drops automatically, giving a positive release. Other details in the construction of the "Aurora" are all worked out with the same care, for added convenience, power range and capacity.

With a factory well equipped for economical production and an unusually low overhead, we are able to offer these rugged, modern drilling machines at a most reasonable figure for their exceptional productive qualities.

*May we send description and quote the close price?*

**The Aurora Tool Works**  
Aurora, Ind., U. S. A.





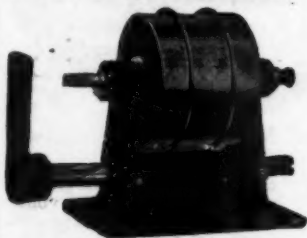
## Burke Quality Excels on Fine Points

**Machines of  
Burke Quality**  
are never built  
with any name  
cast on the  
frame but our  
own—

**BURKE  
CONNEAUT  
U. S. A.**

**For Sale Everywhere**

## **This Tapping Machine Now Has Greater Capacity**



### No. "D" Taps

### $\frac{5}{8}$ " Holes

in

## Horseshoe

## Steel

**BUILT** throughout with exceptional care, our several sizes give service in proportion. Accurate, rapid and convenient, they give solid satisfaction. No. "D" sells for \$50.

**Send for details today**

**The Burke Machine Tool Co.,** Conneaut,  
Ohio

## New and Improved 20-Inch Canedy-Otto Power Drills

We do not believe their equal can be found in the combination of durability, price and capacity for drilling up to  $1\frac{1}{2}$ ".

The bearings are large, with the best of babbitt metal, and with Randall hydraulically pressed sheet graphite cones, *which increases their life 300 to 400 per cent.*

The gears are cut on automatic machines, insuring accuracy and smooth running.



Canedy-Otto Drills are high grade throughout, with all the graduated and automatic features of high-priced machines. Equipped, if desired, with a powerful direct-connected motor, all-spur-gear drive, also a new improved tapping attachment.

*We are offering big quality for a moderate price  
It is no trouble to mail you the full description*

**Canedy-Otto Mfg. Company**  
**Chicago Heights, Ill.**

Manufacturers of Forges, Blowers, Drills, Lathes and Grinders



# Kelly PRODUCTION Tools

for

Cylinders,  
Crank Cases,  
Connecting Rods,  
Auto Parts, Etc.

None operations for all size shells.

We Make  
**DELIVERIES**

in 1 to 10 Days

They  
**"ADJUST"**

Write for Catalog G-H

TRANSMISSION CASE TOOLS 113 OPERATIONS  
FOR MOLINE PLOW COMPANY  
J. H. DAVIS, GENERAL SUPERINTENDENT THE KELLY REAMER CO.

**THE KELLY REAMER CO., CLEVELAND, OHIO, U. S. A.**

C. W. Burton, Griffiths & Co., London, English Agents.  
Burton Fils, Paris, French Agts. 40 Domestic Agencies.

Many good keyseats  
have

been milled with this

**KEYSEATER**

Do You Need One ?

*For Full Particulars*

*Write for Catalog O*

**National Machine Tool Co.**

2266 Spring Grove Ave., Cincinnati, O.



# "Wear-Ever" Tap Chuck

**Saves Time, Taps and Money**



*It saves time*, because it adjusts automatically—no screw to take up variations and true up tap. It is always ready for work and no time is lost in setting for various size taps.

*It saves taps*, because it always runs true, regardless of variation in the size of shanks, saving approximately 90 per cent of all tap breakage.

*It saves money*, because it saves time, because it saves taps, because it is made of a single piece and sold at a low price, and because the "Wear-Ever" outlasts several friction tap chucks.

## A Trial Order Is Convincing

The employer will like them, because they save time, taps and money for him.

The operator will like them, because they are so simple and easy to use.

*How about a trial set?  
You'll be pleased with it.*

**Scully-Jones & Company**

Suite 555 Railway Exchange Bldg.,

Chicago, Ill.

# BECKETT

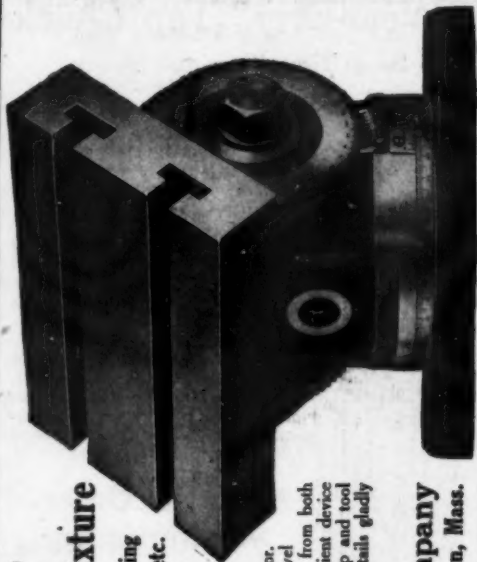
## Universal Angle Fixture

For Drilling, Milling and Grinding  
Machines, Planers, Shapers, etc.

The base is graduated 360 degrees, and the table swings through 180 degrees, with vernier readings of 5 minutes obtained on each. The double vernier saves time and the possibility of error.

A single nut locks the base and swivel head, and a single bolt locks the table from both ends. A wonderfully handy and efficient device which meets a real need in every shop and tool room. Made in three sizes. Full details gladly furnished upon request.

C. H. Tracey Company  
161 Summer St., Boston, Mass.





## For Machining Work at Any Angle On Any Type of Machine Tool



Made in  
4 Sizes

### Universal Angle Plate—8"x10" Worm Adjusting

To set the work and hold it securely at the exact angle or angles desired is as important as the machining itself; and it is also as good economy to save time in setting the work as in machining it.

Our Angle Plate holds the work securely in any position, and adjusts easily and quickly to permit machining at any other desired angle or angles without disturbing work bolted to plate.

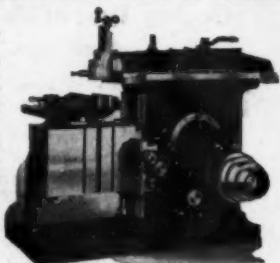
With the vernier attachment it insures the closest accuracy, and its time-saving and money-saving qualities are far beyond its moderate cost. The addition of centers to the platen permits the grinding of formed cutters.

*Write for description of this accuracy-economy device  
You will be glad you did if it leads you to use one*

**Boston Scale & Machine Co.**  
100 Ruggles St., Roxbury, Mass.

## **COLUMBIA** HEAVY DUTY **SHAPERS**

Notice the "straight front" column. No projection to interfere with travel of head when set at an angle. Column is extended at rear, providing long bearing surface for ram.



*It will pay you to investigate these machines*

**The Columbia Machine Tool Company**  
Hamilton, Ohio

## **Shapers**

The best medium priced Shaper on the market.

Built in 16", 18", and 24" sizes, all back geared crank machines.

A few for early delivery.

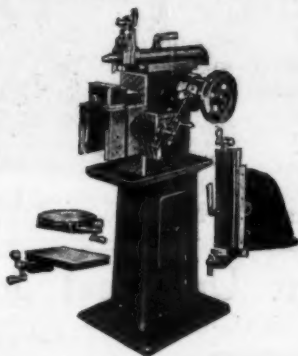


**The Osborne & Sexton Mchy. Co.**  
Columbus, Ohio

# Rhodes Shapers

7½-in. Horizontal } In Combination  
3½-in. Vertical } Or Separate

Furnished separate in both the floor and bench type, and in combination in the floor type only.



They have all the essential features of the larger machines, but of course cost less, and on account of their light running and easy handling they are more efficient and economical for the machining of small work.

The Combination Model, with its patented feature, is an unusual machine with a wide range. It is easily and quickly changed from a horizontal shaper to a vertical slotter, adjustable to 10 degrees.

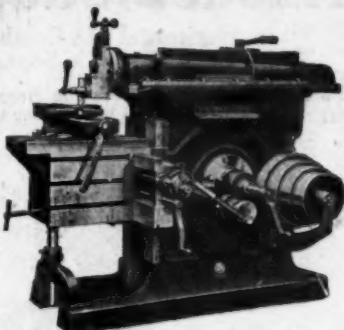
*Big in economy, big in capacity, but  
not in price. Get in touch with us.*

**Rhodes Mfg. Company**  
Hartford, Conn.

# SHAPERS

12", 14", 16"  
Plain Crank,  
16", 20", 25"  
B. G. Crank,  
either Cone  
Driven or  
through  
Speed Box.

28" and 32"  
Back Gear-  
ed Crank,  
Single Pul-  
ley Drive.



**The Smith & Mills Co.** Station B,  
Cincinnati, O., U.S.A.

## Giant Universal Joints

$\frac{1}{2}$ ,  $\frac{3}{4}$ ,  $1\frac{1}{8}$ ,  $1\frac{1}{2}$ ,  $1\frac{3}{4}$ ,  $2\frac{1}{2}$  and  $2\frac{3}{4}$  in., Any Length



**For  
Heavy  
Service**

**to an  
Angle  
of 45  
Degrees**

For use on powerful, high-speed machines. Wearing contacts are of hardened steel and large diameters. They are self-oiling and enclosed against dirt. Also the Vanderbeek Universal Ball Joints, for any angle up to 70 degrees.

**Ainslie Machine & Tool Works**  
Successors to Vanderbeek Tool Works  
**HARTFORD, CONN.**



Terrell's Steel Shelving in a Large Motor Plant

The Use of Steel Fixtures Means

## You Get Permanence

- ¶ Plus economy of space.
- ¶ Plus fire resistance.
- ¶ Plus reduction in fire insurance.
- ¶ Plus reduction in cost of handling stock.
- ¶ Plus reduction in cost of repairs.
- ¶ Plus reduction in cost of re-arrangement.

While the first cost of wood may be somewhat lower, the many advantages of steel makes the latter by far the most economical material to use.

Terrell's Steel Equipment puts a plant on a more economical and efficient basis. Information, suggestions and prices are yours for the asking.

## Terrell's Equipment Company

Hall & Division Sts.,

Grand Rapids, Mich.

# A Universal Metal Cutter

The New "GRAY"—Capacity up to 5/8" Plate



The picture shows a sample of the intricate patterns which it cuts easily, leaving metal flat and edges smooth. Feeds like a sewing machine.

It does the work of any shearing device, and covers a big new cutting field of its own, including much work heretofore done by forging only.

This is probably just the kind of sheet metal cutter you have been looking for.

*We shall be very glad to post you. Your address?*

**W. J. SAVAGE CO., Knoxville, Tenn.**

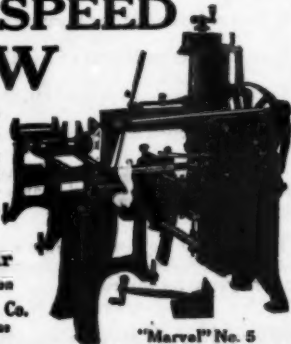
# AUTOMATIC HIGH SPEED SAW

Attention is invited to the "Marvel" No. 5 Cuts duplicate pieces faster and at less cost than any other method. Entirely automatic.

**Feeds the Bar**

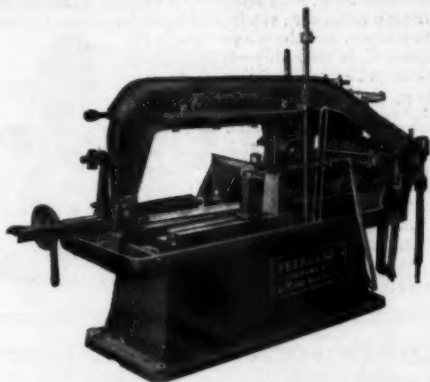
*Write for full information*

**Armstrong-Blum Mfg. Co.**  
341 N. Francisco Avenue  
Chicago, Ill.



"Marvel" No. 5

# *Peerless* **HIGH SPEED** Metal Sawing Machine



**Some reasons for the great number of repeat orders:**

It gives a 50% to 100% greater output than any other machine of its type. Hence, fewer machines are required to do a given amount of work, or production may be materially increased without adding to the number of machines.

It cuts with a thinner blade, saving pounds of expensive stock per day, and uses up fewer of them.

Large users of the "Peerless"—names on request—have selected it, as a rule, after comparative tests with their former favorites, and repeat order after repeat order tell a story of splendid satisfaction.

*Order a "Peerless" on 30 days' trial  
If it fails to make good we pay freight both ways*

**Peerless Machine Company**  
1609 Racine Street, RACINE, WISCONSIN

# Peter Bros. Metal Cutter

**Saves Material, Time and Money**

THE THIN Abrasive Cutting Wheel goes thru all hardened steel, rods and bars of brass and aluminum, forming tools, etc., easily and quickly. Doesn't draw the temper, and there's practically no waste. Cuts smoothly—no grinding necessary. Simple, economical and effective.

**8" Size \$17.50, with C. S.**  
Splendid for tool room. Cuts high-speed steel up to  $\frac{1}{2}$ " square.

**12" Size \$50, with C. S.**  
Cuts up to  $\frac{3}{4}$ " diameter, round or square, at any angle up to 45 degrees. Ball bearing.

**15 Days' Free Trial**

Write us or ask your dealer

**PETER BROTHERS MFG. CO.**  
115 Railroad St., Algonquin, Ill.



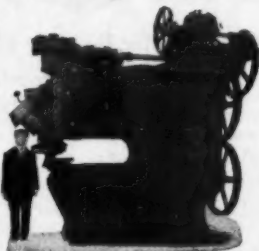
# Quickwork Rotary Shears

Never Fail to Decrease  
the Labor Costs from  
50% to 90%;

Never Fail to Increase  
the Output;

Never Fail to Do Better  
Work.

Cuts straight lines as well as any other Rotary Shear, and in addition will cut the most irregular, serpentine and zig-zagged lines across the sheet with one passage of the metal; or it will cut any shape or opening in a sheet without cutting in from the side.



**Twelve Sizes**—Cutting anything from the thinnest sheets to 1" Steel Plates.

Has three speeds; both cutters driven and the metal is self-feeding, and comes through with smooth straight edges. Send for new catalog.

**THE QUICKWORK COMPANY**  
Successor to H. Collier Smith, Detroit.

Main Factory and Office  
St. Marys, Ohio.



For Greater Speed and Greater Accuracy  
use the  
**"Racine" High Speed Metal Cutting Machine**  
Standard the World Over



A compact machine that

**Saves Time**

**Saves Blades**

**Saves Labor**

**Saves Material**

Made in twenty-two different types. Tell us the size stock you are cutting and we will quote you on a machine suitable for your requirements.

*Ask for our new Catalog H.*

**Racine Tool & Machine Co.**

**Racine, Wisconsin, U. S. A.**

**Use "RACINE" H-S Tungsten Power Blades**

# **Case Hardo**

## **The Ideal Quick Case Hardening Compound**

Hardens quicker, cleaner, deeper and without poisonous fumes.

Used the same as C. P. Cyanide or other quick case agents.

Can be used a number of times, without losing its hardening qualities.

A trial only will demonstrate its ability.

*Write for information and prices.*

Manufactured Only By

**The Thos. Buchanan Company**

29 W. 3rd St.,

Cincinnati, Ohio

Established 1886

**We Do Not Claim**

## **B-G CASE HARDENING COMPOUND**

**To Be BETTER Than Cyanide**

**WE DO CLAIM THAT IT IS EQUALLY**

**SATISFACTORY &  
MUCH CHEAPER**

**You will agree with us when you try it**

**LUMP OR POWDERED FORM**

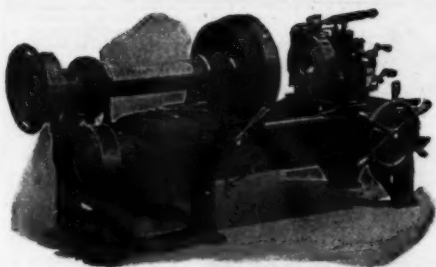
*Write for Booklet*

**Bell & Gossett Co.**

**613 West 30th St.,**

**Chicago, Illinois**

**Phone: Boulevard 2067**



(No. 4 Peerless. Belt Drive. All Gears are Covered.)

With B. & K. Machines You Obtain

## Pipe Threading Efficiency

For a third of a century we have been building and improving our pipe threading machines, and in offering you a choice today of our 17 styles and sizes, we are confident you are getting the very best the market affords.

B. & Ks. have the speed that means top-notch capacity, and the accuracy that assures you of a dependable product at all times.

A gear box drive instantly gives the right threading speed; dies can be changed without removing a screw, and when the die is removed, the die slot can be cleaned without removing the cover.

*Our Circulars give all the details. Send for them now and get ready for the New Year.*

**Bignall & Keeler Machine Works**  
Edwardsville, Ill.



Straight Shank Turning Tool



Boring Tool



Straight Shank Cut-off Tool

## Armstrong Tool Holders

Make One Pound  
of High Speed Steel  
go as far as Ten  
Pounds in Forged  
Tools.

Grand Prize Winners at  
Panama-Pacific Exposition.

*Complete Catalog Free.*



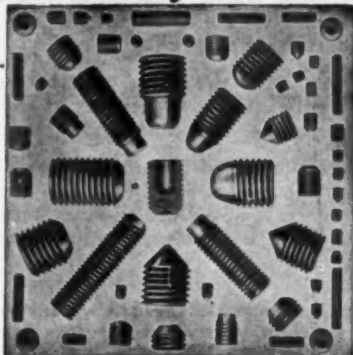
**Armstrong Bros. Tool Co.**

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.

## Allen Safety Set Screws

Absolute Safety—30% Stronger



Uniform Threads—Clean Socket Holes

Write for folder and free samples for testing  
**ALLEN MFG. CO., - Hartford, Conn.**

# Thor Universal Electric Drills

Licensed Under Burke Universal Motor Patent

Indispensable for all kinds of drilling, reaming and wood boring in the building of automobiles, steel and wood cars, boilers, auto bodies, and in railroad and structural shops, ship and dry dock work and machinery repairs. Can be operated on alternating or direct current, 110 to 250 volts. Furnished with cord and suitable feed attachment ready for immediate use. Attach to any lamp socket.



000	Drilling Capacity	1.4"
00	"	5-16"
0	"	3-8"
01	"	1-2"
1	"	9-16"

No. 6 Electric Grinder.

## Independent Pneumatic Tool Company

Chicago    New York    Pittsburgh    Detroit  
San Francisco    Birmingham    Montreal

## Valuable Floor Space Released By Using "The Handiest Racks"



By storing bar stock in a fourth the room it usually occupies, they have released, in many a plant, an amount of floor space that is worth more every year than "The Handiest Racks" cost for all time.

They keep the stock in compact shape, where you can see what you have, where it is easy to assort and inventory, and, as a user says, when it's "so get-atable."

Weight, 125 lbs. Cap. 10,000 lbs. Two of them set back to back as a double rack will store up to 20,000 lbs. in a very compact space.

*Ship on trial? Sure.*

**Wm. S. Yohe Supply Co.**  
503 Mahoning Road, N. E., Canton, Ohio

## Support Long Stock With



**LOWAY**

### Adjustable Stock Support

You will find it convenient, effective and a real economy. It is adapted to any machine which must be fed with long stock. Easy adjustability in height makes it a simple matter to shift the support from one machine to another, or to support any overhang. A time-saving convenience that will appeal to the man who realizes the value of minutes. We make them in two styles.

*It will pay for itself over and over again.*

**A. F. WAY CO., Inc., - Hartford, Conn.**



Have you a drilling proposition on which you would save labor, time and money?

If so—have you considered the advantages presented by the Van Dorn Portable Drills?

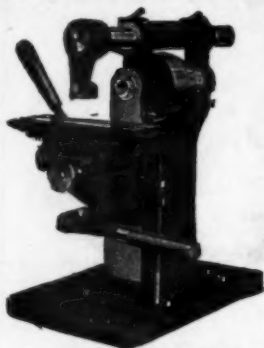
Whatever the requirements—whether high speed or heavy duty drilling in wood, steel, iron, marble, etc., it is always ready.

Our switch is especially designed. We make our own motor and we know of just what they are able to accomplish.

*It would pay you to find out.*

The *Van Dorn* Electric Tool Co.  
Cleveland, O.

*Sales Offices in all leading cities*



## Burke's No. 3 Bench Millers

### Are Seasoned Tools

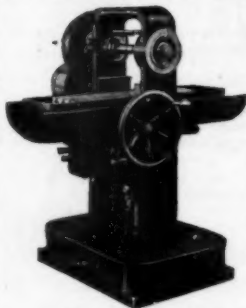
Our system of tests insures accuracy, and our methods of construction make it permanent. Frames and parts are carried 6 to 8 months, after work begins on them, before the completed tools receive our final O. K., and all parts are finished and fitted with exceptional care.

Longitudinal feed, 6 in.; traverse feed,  $3\frac{1}{2}$  in.; vertical motion of knee,  $8\frac{1}{2}$  in.; table surface,  $3\frac{1}{2}$  x 12 inch.

*Write for Catalog, which also shows larger and smaller sizes.*

**The Burke Machine Tool Co.**  
Conneaut, Ohio

## A Manufacturing Engineer



—a man of experience and foresight, saw the great need of a better milling machine. The

### Briggs High Duty Milling Machine

was the successful outcome of his efforts. It is making good on auto and gun parts, as well as in machine shops of every size. Takes the heaviest cuts in hard steel without chatter.

*Glad to forward complete specifications*

**GOOLEY & EDLUND, Inc., Cortland, N. Y.**



## **"Whitney" Hand Miller**

**THOUSANDS IN USE**



Specially handy for the Tool Room. A wide variety of cuts can be quickly set up and completed without any sacrifice of the accuracy so essential in Tool Room work.

### **Prompt Deliveries**

*But they are going fast. Don't wait! Send your order in at once.*

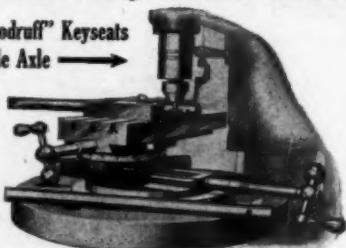
**The Whitney Mfg. Co., - Hartford, Conn.**

**Chains—Keys—Hand Milling Machines**

## Mills On Any Drill Press

Cutting "Woodruff" Keyseals  
In Automobile Axle →

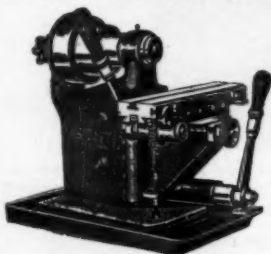
For the  
Garage  
Diemaker  
Repair Shop  
Patternmaker



The Davis Milling Attachment and Compound Table can be used on any drill press from 14 to 42-in. swing. It is equally valuable in big and small shops, as it does most of the lighter jobs as well as a large, expensive machine; cuts all kinds of keyseats perfectly. Our cylinder reamers for reboring the Ford car, and our efficient air compressor are also attractively priced. Send for circulars.

**Hinckley Machine Works,** HINCKLEY, ILL.

## Just The Machine

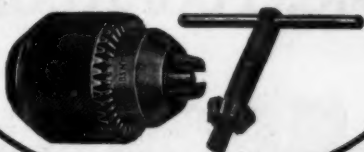


for those light cuts on details for Fire-arms, Sewing Machines, Typewriters, Bicycles, Electrical work, and a thousand and one other details used in the manufacture of the various products of the manufacturing world.

*Send for descriptive circular*

**The Carter & Hakes Machine Co.**  
West Winsted, Conn., U. S. A.

AGENTS—for New England and New York, Hill, Clarke & Co.  
WESTERN AGENTS—Marshall & Huschart Machinery Co.,  
Chicago, St. Louis, Indianapolis.



**JACOBS  
IMPROVED  
DRILL CHUCKS  
Have Won Out  
In the Test of Use**

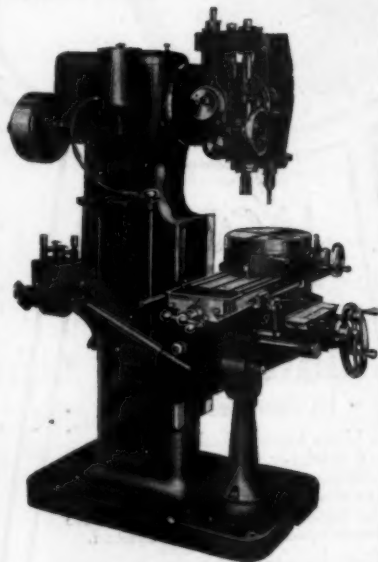
Users know whether they like a thing or not, and they voice their opinion of any mechanical device by buying and using it or by leaving it alone—as fair a vote for or against as could be devised.

There are more such voters for "Jacobs Improved" than for any other drill chuck made.

*You should have the Catalog*

**The Jacobs Mfg. Co.**  
**Hartford, Conn. U. S. A.**

# Two Notable Time Saves a Die, Tool Room and



No. 14 Universal Shaper

The Cochrane-Bly No. 14 universal shaper has

While this machine is used for moulds, etc., it has also been found to be proving highly valuable

It is being used in all kinds of machining, broaching, and accurate keyway cutting in other lines of productive work performed with accuracy

The adjustment in cutting movements, especially when they are employed, make for more accurate work at one setting than the reliability of cost.

Accurate finishing machine, which will also be used for other work. It is a reality in productive work where it is required to be used in

Investigation shows that they will have actually anything they will go on and on. The machine is rapid, exact and very low cost and expanded labor which has always been

*Don't let these get by you*

## Cochrane-Bly Company,

**Saves and Result Producers for**

# **and Productive Work**

The **Cochran No. 14 Universal Shaper** is a precision machine with combination and adjustable heads being adjustable for working at any desired angle.

While this machine is designed primarily for accurate work on dies, jigs, tools, metal patterns, etc., it has ample reserve power for coarse cuts for the rapid removal of stock, and therefore proving invaluable as a productive tool as well.

It is being used in arsenals to splendid advantage for making breads for large guns, also for cutting the keyways in plane gears having taper holes, and for lines of productive work—all the operations being performed with standard equipment.

The adjustment in conjunction with the range of table movements, especially where circular and compound tables are employed, make for many operations being performed with setting time economy in time and much less cost of operation.

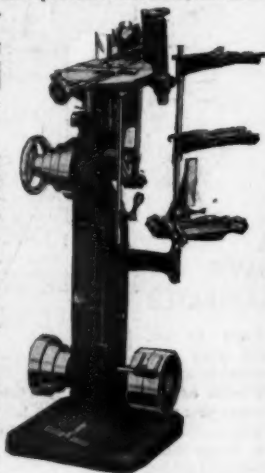
Accurate and simple and easy with the **No. 2 Filing Machine**, which will also do metal jig-sawing, lapping, etc. It is a real find in the tool room, and for productive work when it is required on duplicate parts too numerous to be made in the ordinary way.

Investigation shows that neither of these machines have actually anything after a few months' use, but will go on saving money for you as long as you use them.

The principle underlying both is the substitution of exact and very low cost machine operations for and expensive labor, on a peculiar class of work which has always required especially skillful workmanship.

*See get the write for more details*

**Y, : Rochester, N. Y., U. S. A.**



**No. 2 Filing Machine**

## Modern Methods for Quick Work



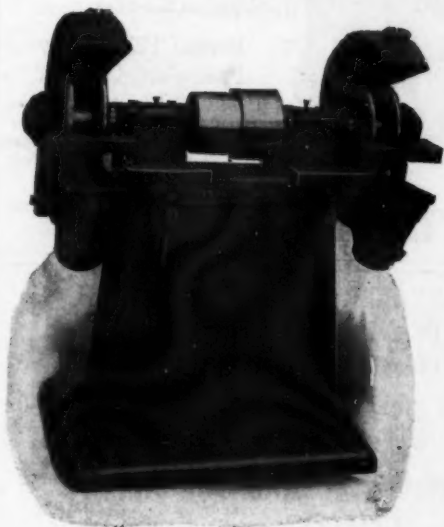
### **A DAVIS KEYSEATER**

Motor driven,  
will save you  
valuable space  
as well as in-  
crease your pro-  
duction. It is  
an investment  
you can't afford  
to overlook.

*Write for Circular*

**DAVIS MACHINE TOOL CO., Inc.**  
**ROCHESTER, N. Y., U. S. A.**

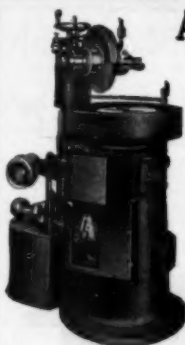
# **Grind it** *on a* **"Blount"**



**No. 6½**

Our eight sizes meet all requirements of general grinding work. The large bearings insure accurate work under continuous heavy load.

**J. G. BLOUNT CO., Everett, Mass.**



## Accurate Grinding

**Of Flat, Convex and  
Concave Surfaces**

No more accurate, convenient and durable machine can be found for this purpose than the—

### **Bristol 12" Rotary Precision Grinder**

It grinds continuously, saving lost motion, to within .0004" of manufacturing accuracy. Also built for flat work only. Investigation invited.

**Bristol Machine Tool Co., Bristol, Conn.**  
Successors to The C. G. Garrigus Machine Co.

## **GREATER SPEED HEAVIER CUTS**

**Possible on the**



## **UNIVERSAL TOOL GRINDER**

through the use of ball bearings in the wheel spindle.

Write for catalog illustrating and describing the other superiorities of the **STERLING GRINDER**



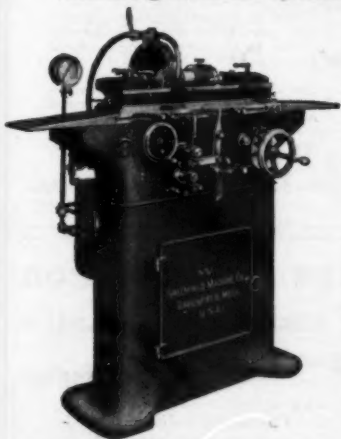
**McDONOUGH MFG. COMPANY, Machine Tool  
Eau Claire, Wisconsin Department**



# *Greenfield*

## **No. 1 Plain Grinder**

**For saving time and money in the finishing of small cylindrical parts**



Within  
the  
reach  
of  
every  
shop

### **The Small Grinder With the Rapid Cut**

The hydraulically driven table operates and reverses with such wonderful smoothness that it permits two to three times as rapid cuts as larger and much more expensive machines. It takes lighter cuts at correspondingly higher speeds, and saves several hundred dollars in cost without loss in production. It is extremely simple, highly efficient, and unusually economical in both first cost and cost of operation.

*It will pay you to get our proposition  
Our Universal Grinder is another good buy*

**Greenfield Machine Company**  
Greenfield, Mass., U. S. A.

## Common Sense Tells You



that your money will not buy a better tool than one correctly manufactured from the best raw material procurable.

*Tungsten-alloy steel, milled teeth and uniform temper* are all features of

### Liberty Hack Saw Blades

Liberty blades are more than ordinary hack saw blades—they represent the utmost in the construction of metal cutting saws.

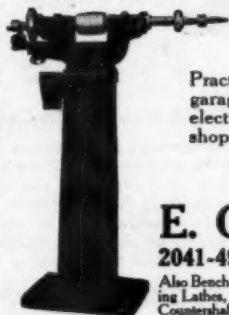
*Our .049—10 point blade is recommended for use in all high speed hack saw machines.*

**Sterling Products Co., Inc.**

549 Washington Blvd.,  
CHICAGO

15 Park Row,  
NEW YORK

## Partridge Combination Grinding and Polishing Lathe



With Ring Oiling Bearings

Practically indispensable for garages, tire repair shops, electro-platers, small machine shops, etc.

*Write for Circulars*

**E. O. Partridge**

2041-49 W. Lake St., Chicago

Also Bench, Column & Cabinet Grinders, Polishing Lathes, Light Punch Presses, Hollow Mills, Countershafts, Chuck Arbors and Saw Mandrels.

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# New

## "Wells" Universal Cutter Grinder No. 190

### A Quality Tool



In common with the G. T. D. policy of modernity, the "Wells" Universal Tool Grinder has been redesigned and brought strictly up-to-date. Rigid inspections of raw materials and finished product assure the uniformly perfect quality of each & every machine.

Your tool room equipment is not complete without one.

*A trial convinces*

**Machine Tool Division**

**Greenfield Tap and Die Corporation**

**Greenfield,  
Massachusetts,  
U. S. A.**





## The Manhattan

### A Surface Grinder of Special Merit



A tool of precision and quiet efficiency, with practical improvements in nearly every detail.

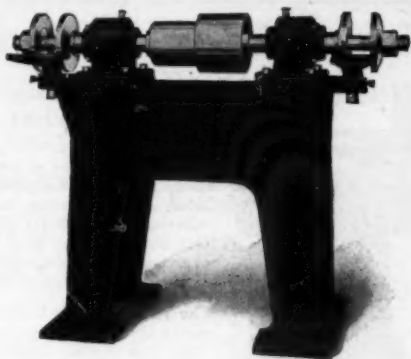
It is so massive and rigid that there is no vibration, yet so compact that it takes little floor space. The construction of spindle, with over-size phosphor bronze bearings, give unusual capacity for heavy cuts. Dials on both feeds graduated to thousandths, of which fractions may easily be obtained. The large table is surface ground with its own wheel. Unequalled in its combination of range, convenience, output and accuracy.

*May we mail specifications?*

**Manhattan Machine & Tool Works**

Dept. A.,

Grand Rapids, Mich.



## BALL BEARING GRINDER

**5 Sizes for Wheels, 8"x1" to 30"x4"**

Aside from the very great advantage of ball bearings over any other type in the matter of power consumption, there is the further material advantage of greater longevity, as well as a considerable saving in lubricant, ball bearing machines requiring lubrication only every few months.

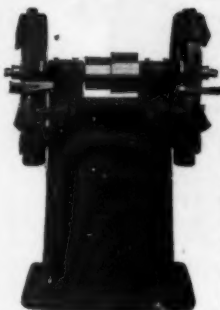
Bearings employed are of highest grade American make—double row combined radial and thrust type, and fully guaranteed by both the manufacturers and ourselves.

*For Complete Specifications and Description,  
Ask for Bulletins 8 & 9*

**The Webster & Perks Tool Co.**

**Box 1340, Springfield, Ohio, U. S. A.**

## For Critical Users



### Imperial Wick Oiling Grinders

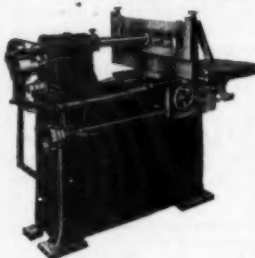
are designed for those who believe in the economy of good machines. They have large, bab-bitted, wick oiling bearings, lined with sheet graphite, heavy spindles, flanges one-half diameter of maximum wheel size, ring oiling bearings on countershaft, etc.

Our new Box Bed Column, shown in cut, eliminates vibration. It is regularly furnished on our 16" and 18" machines.

**CLIZBE BROS. MFG. CO., Plymouth, Ind.**

## Schmidt's Internal Grinder

**Rapid—Accurate—Dependable**



Especially adapted to the regrinding of tractor, truck and automobile engines.

Automatic reverse feed. Ball-bearing spindle and countershaft.

A simple, handy and thoroughly dependable machine for rapid and accurate work.

Immediate delivery.

*Write for description and the moderate price*

**B. L. Schmidt Co., A 8, Davenport, Ia.**

# The Thompson Cutter and Tool Grinder

## With Special Universal Features

### Cutter Sharpening

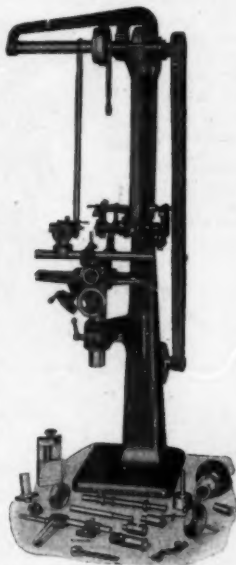
The "Thompson" is unsurpassed for the quick, easy and accurate sharpening of all forms of cutters and reamers.

### Special Features

Cylindrical, surface and internal grinding attachments make the "Thompson" a highly desirable machine in the manufacture of small parts. A special radius grinding device is also furnished when desired.

The grinding wheel head is fixed and immovable. All adjustments are made by the parts carrying the work.

We can make immediate delivery of belt-drive machines with separate countershaft; 60 days on self-contained types, with motor or jack-shaft drive.



Self-contained—For motor drive

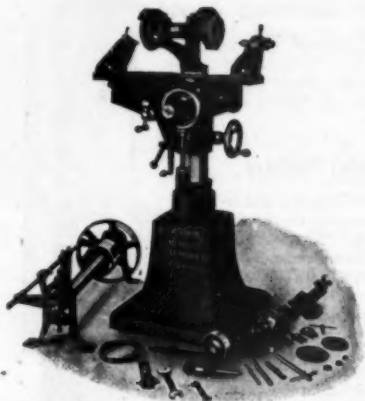
*We have a cleverly illustrated folder showing a variety of operations. Let us send you a copy. No obligation.*

## The Thompson Grinder Co.

Springfield, Ohio.

# Grand Rapids No. 1

Universal Cutter, Reamer  
and Tool Grinder



Simple in Design  
Efficient in Service  
Accurate in Workmanship  
Economical in Cost

*Ask for bulletin giving full particulars*

**Grand Rapids Grinding Machine Co.**

17 Ottawa Ave., N. W.

Grand Rapids, Michigan, U. S. A.





## Premier Universal Tool and Cutter Grinder

With a swing of 8" and capacity of 15" between centers, together with the regular equipment furnished, it will grind almost any cutter or other tool used in a modern tool room. Workmanship, material and design of the highest quality.

*Write for descriptive  
Circular*

**Immediate Delivery**

## Simmons 10" Universal Index Centers



Manufactured with the idea of supplying the market with a device in which accuracy, durability and simplicity are the main issues and in which no one feature is sacrificed for another.

The price is the lowest consistent in keeping with the above standards. Our production is such that immediate delivery can be made.

***You need one? Order now!***

## Simmons Machine Co., Inc., Albany, N. Y.

New York, 1001 Singer Bldg.  
Buffalo, 358 Ellicott Square

Detroit, 804 Dime Savings Bank Bldg.  
San Francisco, 316 Rialto, Building

# Perfect, Noiseless Riveting

## With the Grant Rotary



Noiseless in operation.  
Highly polished rivet heads.  
No hammer or tool marks.  
Speed, one rivet a second.  
Operated by a boy or girl.

Uniform results—each rivet headed with the exact degree of tightness or looseness desired.

The Grant Rotary Rivet Spinning Machine challenges comparison in its combination of speed, economy, noiseless operation, and finish and uniformity of product.

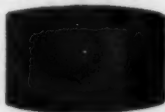
**The Grant Mfg. & Machine Co.**  
C. E. Station, Bridgeport, Conn.

## Dependable Punches



There is more difference in the *performance* of punches than in their *appearance*. It requires infinite care and lots of punch experience to make them dependable for their heavy, exacting work.

**T. H. L. Punches are  
Accurate, Uniform, Dependable**



They are uniformly constructed of the correct steel, by experienced punch makers, for maximum results. Prompt shipment of all regular sizes. Special sizes quickly made.

*How about a trial order?*

**T. H. Lewthwaite Machine Co.**  
415 East 31st St., New York City

# Riveting Revolutionized

"The Hammer with the human stroke"

**Heads Rivets Cold**



Heads 'em tight or loose, flush, countersunk, or finishes heads any shape desired at the rate of:—

A rivet a second, sizes up to 3-16 in.

A rivet in two seconds, sizes 1-4 to 3-8 in.

A rivet in three seconds, size 7-16 to 5-8 in.

## **Built in Eight Sizes**

Send us sample assembly parts with rivets or sketch of your work, and let US shoulder your riveting problems.

*Send for the High Speed Hammer Book*

Department 13

**The High Speed Hammer Co., Inc.**  
**Rochester, New York**

# Roll Feeds

For All Makes of Presses

The Acme Roll Feed *doubles and triples production* over hand feeding. Several in use by U. S. Government.

Mounted on its own bolster plate, it is easily taken off and put on. Has extra large rolls, hardened and ground. Feeds accurately at high speeds. Gears guarded.

Furnished with scrap cutter and straightening device if desired.

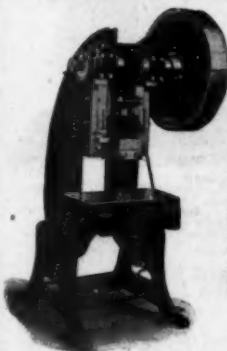
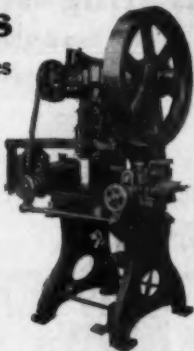
We make roll feeds, dial feeds and other special feeds for all makes of presses.

Get in touch with us

**Acme Machine Works**

4125 E. Ravenswood Ave.,

Chicago, Ill.



## L-J Inclinable Power Presses Do Rapid Work

When you buy our Presses you also get the benefit of our valuable experience of the past 25 years. Cut shows our No. 4 Flywheel Press, capacity 34 tons pressure.

Practical men appreciate the massive frame, exceptionally large shaft bearings, solid web flywheel, with removable bushing, wick oiling bearing caps, etc. The many conveniences insure top-notch capacity and accurate work; and safety for operator and dies.

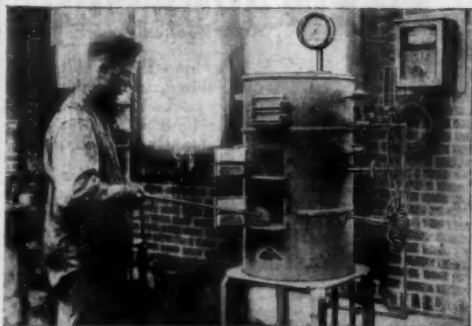
*Illustrated folder gives details of the several sizes. Write us*

**Loshbough-Jordan Tool & Mche. Co.**

Elkhart, Indiana

# A Real Improvement In Heat Treating Steel Tools

Saving Time, Cost and Space  
With Greater Certainty in Results



## The "TRIAD"—Three Furnaces in One

*The "Triad"* has three compartments in one unit, for pre-heating, high-heating, and drawing the temper.

*It's economical*, because all three compartments may be used at once with only one oil or gas burner to heat them, and because it costs less than separate units.

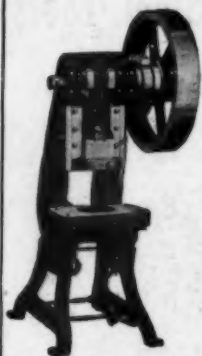
*It is quick*, heating carbon steel to hardening temperature in 10 minutes, and high speed steel in 20 minutes.

*It gets results* that are more certain and uniform, without pitting or scaling from oxidation.

*Write for more information—no obligation*

**W. R. BENNETT CO., Elmwood, Conn.**

## Here Is A Press



With Plenty of Steam  
Back of THE PUNCH

HIGH DUTY  
**ROCKFORD**  
PUNCH PRESSES

Made in straight side and  
inclinable types. Their great  
power backed by rigid design  
enable them to do the work  
you demand and stand up to it.

*Write For Catalog*

**Rockford Iron Works**  
Rockford, Ill.

## The Etna Rotary Swager



Unequalled for pointing, taper-  
ing, or reducing stock to any  
circular form within limits of a  
few thousandths of an inch, by  
striking 3,000 or more powerful  
blows a minute with a pair of  
grooved dies.

*It has often multiplied production  
five to ten times when replacing  
power hammers.*

Made in regular sizes to swage  
 $\frac{1}{8}$ " to  $4\frac{1}{2}$ " diameter. Any reason-  
able change in size made to suit.

Get acquainted with Etna  
swaging possibilities. Write for  
Catalog, which explains fully  
and gives actual production fig-  
ures on several operations.

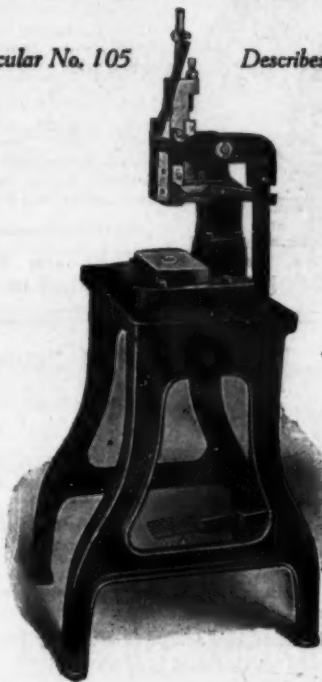
**The Etna Manufacturing Co., TOLEDO, OHIO**

# Spring Foot Press No. 105

Uniformity of Blow    Vibrationless    Non-Fatiguing

*Circular No. 105*

*Describes It*



**The Taylor & Fenn Company**  
Hartford, Conn.

## The Wastage of 5 Men's Time Is Stopped with a Canton Crane



Heavy castings and machines which require from 6 to 10 men to move around, are easily and economically handled with

**"The Handiest Tool  
In the Shop"**

Canton Cranes do the work in safety, saving money, muscle, time and temper.

*Your choice of many sizes.  
Booklet E-8 tells you all about them.*

**CANTON FOUNDRY & MCHE. CO., Canton, O.**

## ELECTRIC EUCLID HOISTS

**Let OUR Engineers Save YOUR Time**

It is possible that you realize the need of modern material handling equipment but cannot spare the time or men to work out the details.

Our engineers are constantly solving these difficulties and helping manufacturers reduce expenses.

Furthermore, this service is absolutely free.

Will you take advantage of it?

**The Euclid Crane & Hoist Co.**  
Dept. C                      EUCLID, OHIO, U. S. A.





## **You Can Write Indelibly on Steel**

even when hardened, just as easy as with a pencil on paper, by means of

## **THE ELECTRO-STYLOGRAPH**

Very useful for permanent marking of tools, gages, dies, metallurgical test specimens, etc.

**THE ELECTRO-STYLOGRAPH CO.**  
2 EAST 24TH STREET, NEW YORK



No. 24 Press

## Efficient Equipment Atlas Presses

for building and repairing automobiles and general machine shop operations requiring pressure up to 25 tons and centering capacity up to 38 inches.

For driving mandrels; bending and straightening, broaching, embossing with dies, setting bushings and many other every day manufacturing jobs, there is an Atlas Press. All sizes for all purposes. *It will pay you to investigate.*

**Atlas Press Co.**

317 N. Park Street,  
Eatonville, Mich., U. S. A.

## 10 to 2000 Tons Force Applied

With Lourie Arbor and Power Presses

Power Pumps; Baling Presses;  
Bulldozers; Hydraulic Machines; etc., etc.



Let us build to suit your needs. Glad to submit estimate. Write us.

**Lourie Mfg. Co.,**

**Springfield, Ill.**

Cap.  
**20**  
Tons



List  
Price  
**85<sup>00</sup>**

## **WEAVER**

# **Forcing Press**

WE ARE SPECIALIZING upon this one size and style of press. It is the ONLY press we make, therefore we are able to produce a better article at less money than were we compelled to carry the overhead necessary to produce a great variety of styles.

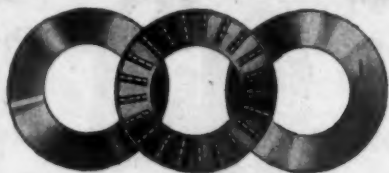
5-inch, 9-pound channel steel frame, 32-in. wide, 15-in. hand wheel, carried upon ball bearings. Bronze Thrust Bearings, Screw 2 in. in diameter with 3-pitch Acme thread. Range of movement, 12 in. The screw does not revolve.

List Price (32-in. Width) **\$85.00**

**Weaver Manufacturing Co.**

2179 So. 9th Street,

Springfield, Illinois



# BEARINGS

**LIGHT DUTY**

**HEAVY DUTY**

**ALL TYPES**

**MANY SIZES IN STOCK**

**THE GWILLIAM COMPANY**

**ENGINEERS**

**253 WEST 58th ST., (at Broadway), NEW YORK**

**Branch, 1314 Arch St., Philadelphia**

## Abbott Steel Bearing Balls

**High Grade—Highly Finished**



**We shall be glad to have your inquiries and make estimates**

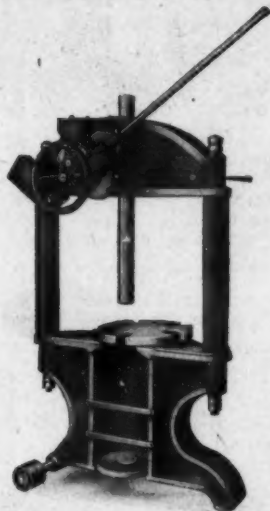
**The Abbott Ball Company**

**Elmwood District, Hartford, Conn.**



# Greenerd Arbor Presses

From 15 lbs. to 40 Tons Pressure



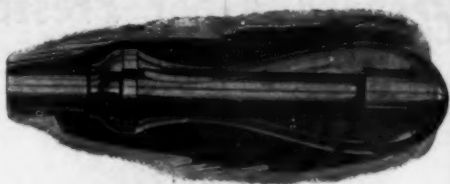
No. 17. Leverage, 250-1. Weight, 2100 Lbs.

One man, 20 tons; two men, 35 tons pressure

GREENERDS are *original* in design, superior in construction, adaptable to many uses, and an ever-present help in time of trouble. The frames are made of a strong steel mixture which withstands a tremendous strain. Racks and pinions are of a special alloy steel, heat treated. The form of gear tooth was designed by Brown & Sharpe especially for Greenerd Arbor Presses. They are made for the thousand-and-one purposes where a steady, even pressure can be applied, from driving pins into and out of small rolls and cutters to straightening automobile axles.

*The Catalog is worth asking for. It explains.*

**EDWIN E. BARTLETT, Nashua, N. H.**



## Quick Action

This is what we call this new Machine Handle. Attached to any power tool, especially the heavier types; adjustments are made with more speed and less effort.

All kinds of standard and special Handles from steel for power tools and similar purposes.

*Send for Catalogue and prices.*

**The Cincinnati Ball Crank Co.**  
Oakley, Cincinnati, Ohio



Style "C"



The Hinge



Style "Y"



Style "B"



Style "G"



Style "O"



Style "L"



Style "T"

### GITS OIL CUPS

Give perfect satisfaction where others fail. State style and size in which you are interested, and we will send free samples and catalog.

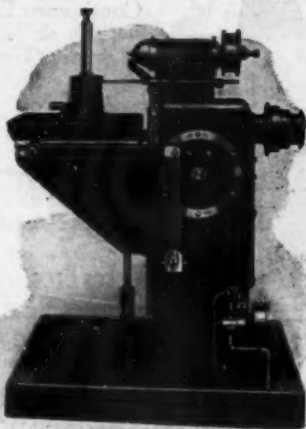
**GITS BROS. MFG. CO.**  
1940 SO. KILDURN AVE., CHICAGO



Style "H"

# Cross Gear and Tooth Rounder

A Machine that has Revolutionized  
Both Quality and Quantity Production



**Quality:**—It makes the end of each tooth a perfect half-circle from tip to root.

**Quantity:**—It rounds 24 teeth per minute, any pitch  $\frac{3}{8}$  or finer.

Let us figure on its application to *your* sliding gears, with our guaranty of work, time and cost.

**Cross Gear & Engine Company**  
Detroit, Michigan

Patented here and abroad; sold ONLY by us

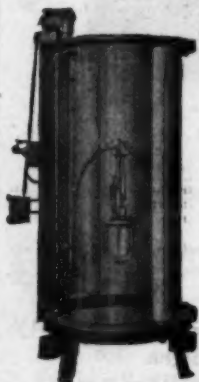


# Blueprints

## The Wickes

Continuous Electric.  
Sells at half the  
price. Uses half  
the current  
of others.  
Perfect prints  
up to 48" in  
width and of  
unlimited  
length.

Wickes Bros., Water St.,  
Saginaw, Mich.



# Electric Blue Printing Machines

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Write for Catalogue B-3

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Buckeye Engine Co.  
Salem, Ohio



# The PHOTOSTAT—A Thrift

(Reg. U. S. Pat. Off.)

## Saves Labor



This Cut  
Shows a  
PHOTOSTAT  
in Operation

The PHOTOSTAT, which is manufactured by the Eastman Kodak Company, is a combined camera and copying machine. The copy is made directly onto a roll of paper. No intermediate glass plate, or film, or other negative, has to be made. By copying thus directly onto the paper, the copy is made very quickly and at a low cost. Also the copy is a facsimile of the original, so that there can be no mistake in it. The print is developed and fixed right in the apparatus itself; this part of the process, as well as the focusing and exposing, all being mechanical. The print is then removed to a tank of running water, in which it is washed free from chemicals. Finally the print is taken from the water and dried and is then ready for use. The whole process is a rapid one, the average speed per print being from one to five minutes.

The PHOTOSTAT is used in Factories, Machine Shops and Offices, to copy at actual size, in reduction, or in enlargement:

Pencil Drawings, Blue Prints, Tracings, Sketches, Shop Orders, Illustrations for Salesmen, Cuts and Drawings for Patent Work, Cuts and Lay Outs for Advertising, Reports, Cost Sheets, Vouchers, Accountings, Contracts, Testimonial Letters.

*A small book giving detailed description  
will be sent to you upon request to the*

## Commercial Camera Company

343 State Street, Rochester, New York

325 Grosvenor Bldg., Providence, R. I.

Alfred Herbert, Ltd., Agents, Coventry, England.

# Pattern Shop Machinery

Special Prices if you refer to this ad.



## Band Saws

Chicago No. 00 27 in. Wheels  
 " No. 0 32 " "  
 " No. 1 36 " "



## Saw Tables

Chicago No. 5 Stationary Table  
 " No. 9 Tilting Table  
 " No. 10

Boring attachment if wanted.



## Jointers

8 in., 5 and 6 ft. tables and guard.  
 12, 16, 20, 24 and 30 in., 7 ft. tables  
 and guard.

Trimmers, Lathes, Core Box Tools, etc.

Ask for full descriptions

**Chicago Machinery Exchange**

1211-1227 Washington Boulevard, Chicago

# It Increases Efficiency

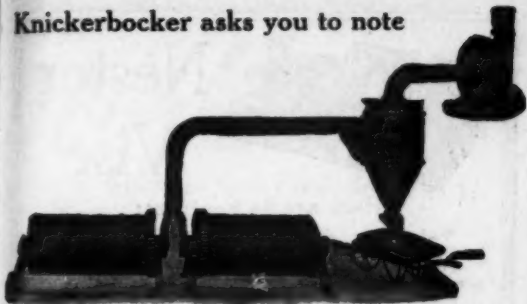
By Having a Place for Everything

This has been the experience of leading manufacturers who have installed this Modern Bench in numbers for their tool makers and bench hands. With six drawers, a blueprint slide, a shelf, and three large compartments for stock, they can put their hands instantly on what they want, and they are not distracted by a litter of tools, stocks, blueprints, etc. Write for full description and price, and let us refer you to large users.



**THE RITCHIE-WERTZ CO., Dayton, Ohio**

Knickerbocker asks you to note



## The Points of Superiority

### In the "Rarefied"

**Greater efficiency**—After thoro investigation and trial, a number of the largest plants in the country installed from 5 to 20 "Rarefieds"—one is using 26 at present.

**Saves power**—They never fail to save power. One firm is now doing with 25 electric h. p. what formerly took 45 h. p.—a net saving in this instance of 20 h. p.

**Reduces repairs**—Abrasion of fan parts is prevented because the "Rarefied" collects and automatically discharges the dust before the air reaches the fan. Saves labor because there's no cleaning out by hand.



*Our interesting Booklet gives full details as to "how" and "why."*

*Write for a copy*

**The Knickerbocker Co.**  
Jackson, Mich.



# Nestor Vise

## Here are its Features:

Work is gripped almost instantaneously—moves from maximum to minimum with quick action sliding jaw.

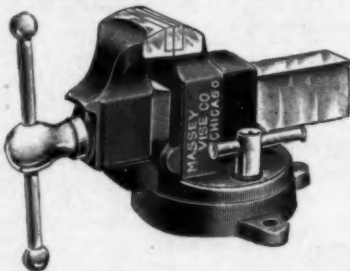
For size and weight an extraordinary gripping range is provided.

Hole can be drilled at right angles without taking work from vise.

Special provision makes it impossible for jaws to cock up. Immediate delivery.

*Write for particulars, sizes and prices*

**Nestor Manufacturing Co., Inc.**  
40 W. 13th St., New York City



Our new No. 18 Catalog just off the press illustrates our complete line of iron and woodworkers' vises. *Write for a copy.* Massey vises are guaranteed to give you the service you have a right to expect from good shop equipment.

**Massey Vise Company**  
549 Washington Blvd., Chicago, Ill., U. S. A.

# Redface Pulleys



**Sheaves and Fly Wheels**



**PERMANENT:** They are permanent, as they are not affected by age, heat, cold or moisture.

**RELIABLE:** They do not loosen up under vibration or intermittent loading.

**RUN TRUE:** They run true, steady the line shaft, and have a very small load due to windage.

**REDFACE PULLEYS** are especially adapted to use on motors, fans, pumps and special machinery.

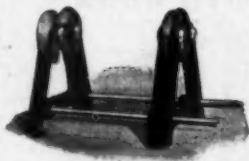
*Catalog mailed promptly upon request*

## **Pyott Foundry Co.**

Cast Iron Pulleys, Sheaves and Fly Wheels  
328 N. Sangamon St., Chicago, Ill.

## Sensitive Balancing Ways

Suitable and Reliable for Balancing Cutter Heads, Crank Shafts, Airplane Motors, Propellers, Polishing Wheels, Cones, Pulleys, Gin Brushes, Armatures, Rotars for Turbines, Etc. Several Sizes.



### Anderson Ever-Ready Balancing Ways

require no adjusting. The rotating discs are made of chilled iron ground true on face and perfectly balanced. They run in especially designed ball bearings and are extremely sensitive.

*Dependable at all times. Write us for price.*

**Anderson Bros. Mfg. Co.**  
115 Morgan St., Rockford, Ill.

## GEM VISE



Drill Vise suitable for the Tool Room and Machine Shop. Write for prices and further description.

Made by

**J. E. Martin Tool & Die Co.**

548 West State Street,

Springfield, Ohio

## Second-Hand Machinery.

Lists of Second-Hand Machinery, either for sale or wanted, set in uniform style, will be published under this heading at the rate of **50 cents a line**, across the page, each issue. Minimum charge, **\$4.00**. Sub-headings are counted as one line, but the name and address of advertiser are not included in the space charged for. No display in this department.

**Write directly to those offering the machines for sale for prices and full descriptions.** If what you require is not listed, use the blank enclosed to make known your wants to the publisher.

### FOR SALE BY

**The Simple Oil Engine Mfg. Co.,**

**Trinidad, Colorado**

#### DRAWINGS FOR OIL ENGINES.

Drawings for line of oil engines. Engines in the six years; can be seen in operation any time.

### FOR SALE BY

**Frank H. Parker Company,**

**First Nat'l Bank Bldg., Chicago, Ill.**

**Machinery Merchants—Telephone, Randolph 925**

Drill press, 56" vertical.....\$ 350.  
Grinder, 30"x30" wheel..... 75.  
Lathe, 14"x6", p. r., 1 1/2" h. s.... 175.  
Lathe, 16"x8" L. & S., q. c. g.. 625.  
Lathe, 28"x16" Harris, p.r., s.s. 300.  
Planer, 36"x36"x12' open side. 1200.  
Planer, 36"x36"x14', 2 heads.... 1500.

Saw, cold, 36" Espen-Lucas...\$ 350.  
Shaper, 24" Steptoe, geared... 350.  
Shear, 8' square, 20 ga. power. 250.  
Shear, 30" square, no gauge.... 25.  
Testing mche. 50,000 lb. Riehle 600.  
Tire setter, West No. 2..... 1200.  
What have you to trade or sell?

### FOR SALE BY

**The New Departure Mfg. Co.,**

**Bristol, Conn.**

#### ROTARY SURFACE GRINDERS.

12 Rotary surface grinders; oscillating heads with vertical adjustment and variable stroke, arranged to feed automatically in both directions. Greatest distance center of wheel to top of chuck, 9 1/2"; vertical adjustment of head, 3 1/2"; diameter of magnetic chuck, 10 1/2"; voltage, 110 d. c. Machines are in good condition and complete with grinding wheel and guard. Walker magnetic chuck and switch, overhead countershaft, water guards, piping and connections for central water supply system. Special price for immediate acceptance, \$250 each f. o. b. Bristol. Further information on request.

### FOR SALE BY

**Girard Machine & Tool Co., 491-493 N. Third St., Philadelphia, Pa.**

Boring and chucking machine, vertical, 36" Brown & Sharpe.

Engine lathe, 24"x12" Pratt & Whitney.

Engine lathe, 25"x16" Blaisdell.

Engine lathe, 28"x12" New Haven.

Lot of 12, 14, 16 and 18" lathes, with various size heads.

Planer, 36"x36"x12' Wilson, two heads on cross rail.

Planer, 30"x30"x 8' Woodward & Powell, one head on cross rail.

Planer, 24"x24"x 6' Woodward & Powell, one head on cross rail.

Turret lathes, 2"x24" Jones & Lamson, geared set-over head, single pulley drive, bar equipment, (2).

Turret lathe, 2"x26" P. & W., all feeds, oil pump, bar equipment, b. g. and friction head.

Turret lathes, No. 3 Foster, 1 1/2" automatic chuck capacity, oil pan, pl. hd., (4).

Lot of other size lathes and screw machines, drill presses, etc.

## SECOND-HAND MACHINERY

### FOR SALE BY

**McCoy-Brandt Machinery Company**  
Office and Warehouse, 210-218 Penn Ave., Pittsburgh, Pa.

### NEW EQUIPMENT.

#### LATHES.

- |                                     |  |
|-------------------------------------|--|
| 19"x14" Sidney, q. c., d. b. g.     | 16"x 8' South Bend, s. b. g., cone.      |
| 19"x12" Sidney, q. c., d. b. g.     | 16"x 6' South Bend, s. b. g., cone.      |
| 19"x10" Sidney, q. c., d. b. g.     | 15"x 6' South Bend, s. b. g., cone.      |
| 17"x10" Sidney, q. c., d. b. g.     | 13"x 6' South Bend, s. b. g., cone.      |
| 15"x10" Sidney, q. c., d. b. g.     | 14"x 6' Filsmith, semi-q. c., conc.      |
| 15"x 8' Sidney, q. c., s. b. g.     | 16"x 6' Filsmith, q. c., d. b. g., conc. |
| 18"x10" South Bend, s. b. g., cone. | 10"x 4' Climax, s. b. g., cone.          |

#### MILLING MACHINES.

- |   |  |
|---|--|
| No. 14 American, geared, plain.                   | No. 1 Bickett, pl. hand, table 54"x24".        |
| 10"x28" Bristol, vertical, with 13" rotary table. | No. 0 Bickett vertical profiler, table 7"x10". |
| No. 1 U. S. pl., hand, table 44"x23".             |  |

#### DRILL PRESSES.

- |  |  |
|--|--|
| 23" Weigel, sliding head.              | 10" Burke sen. bench, cap. 5/16", (8).     |
| 25" Silver, sliding head, geared, (3). | 9" Western Chief, bench, capacity 1", (8). |
| 20" Silver, plain or geared, (18).     |  |
| 14" Excelsior, sens., 2 tables, (4).   |  |

#### POWER METAL SAWS.

- |   |                                |
|---|--------------------------------|
| Peerless, capacity 12"x16" motor bracket, with speed box. | Peerless, cap. 6"x 6" belted.  |
| Peerless, capacity 9x9", belted.                          | Economy, 6"x 6" belted, No. 2. |
|   | Economy, 8"x 8" belted, No. 4. |

#### ARBOR PRESSES.

- |                                    |                              |
|------------------------------------|------------------------------|
| No. 3 Greenerd, (3).               | No. 5 Greenerd, with stand.  |
| No. 3-A Greenerd, (4).             | No. 13 Greenerd, with stand. |
| No. 24 Greenerd, with stands, (2). |                              |

#### GRINDERS AND BUFFERS.

- |                                       |  |
|---------------------------------------|--|
| No. 2 Woods universal tool & cutter.  | 14"x4" W. & P. gr. and pol., No. 13 T. |
| 18"x2" Webster & Perks wet tool.      | No. 0 W. & P. pol. & b'ng la's. (3).   |
| No. 4 W. & P. polish. & buf. lathe.   | 12" Patch, double end, with col.       |
| 10" Patch, dble. end, with col., (3). | 18" Patch, double end, with col.       |

#### MISCELLANEOUS.

- |  |   |
|--|---|
| Hammers, 50 & 100 lb. Little Giant.    | Shaper, 28" Queen City, crank, grd.                   |
| Press, No. 4 Garrison, o. b. 1.2" str. | Shapers, 18", 21" & 24" Hollingsworth, crank, geared. |
| Shaper, 24" Kelly, crank, geared.      |   |

### USED EQUIPMENT.

#### BOLT CUTTERS.

- |                                     |                                      |
|-------------------------------------|--------------------------------------|
| 3" Acme, double-head, with motor.   | 14" Acme, sgl. hd., pump & pan, (2). |
| 14" Acme, dble.-hd., oil pump, pan. | Nut tapper, 2-apdl. Acme, 14", pan.  |

#### DRILLING MACHINES.

- |  |  |
|--|--|
| Radial, 5' Prentice, gear box, tapping ping attachment, plain. | 20" Baker heavy duty, power feed.                |
| Radial, 36" Dreses & Mueller, pl.                              | 24" Colburn hvy. duty, No. 4 Morse.              |
| Radial, 36" Bickford, plain.                                   | 24" Barnes, plain, sliding head.                 |
| Radial, 24" Fosdick, plain.                                    | 24" Cincinnati, pwr fd., sliding hd.             |
| Multiple 8-spindle Foote-Burt.                                 | 28" Back geared, power feed, apdl. 1-3/16" hole. |

#### GRINDERS.

- |                                    |  |
|------------------------------------|--|
| 126" Bridgeport, cup wheel, knife. | No. 13 B. & S. universal & tool, auto. feed. |
| B. & S. plain, 12x12", auto. feed. | Diamond, knife, 21" wheel.                   |
| Bath univ. tool & cutter, 14x40".  |  |

#### LATHES.

- |   |  |
|---|--|
| 48" Niles car wheel turning, journal attachment, m. d.                |  |
| 28"x14" R. M. & C., h. s., c. r., t. a., 24" 4-jaw chuck.             |  |
| 24"x15" New Haven, h. s., c. r.                                       |  |
| 24"x15" Fifield, solid spindle, plain rest.                           |  |
| 24"x12" S. B. & E., 6" raising blocks, h. s., c. r., 18" 4-jaw chuck. |  |
| 16"x 8' Prentice, c. r., h. s., 12" 4-jaw chuck.                      |  |
| 16"x 6' Prentice, h. s., c. r., 12" 4-jaw chuck.                      |  |
| 16"x 6' R. M. & C., h. s., c. r., 12" 4-jaw chuck.                    |  |
| 16"x 6' LeBlond, h. s., c. r., 12" 4-jaw chuck.                       |  |
| 14"x 5' L. & S., h. s., c. r., 10" 4-jaw chuck.                       |  |



## SECOND-HAND MACHINERY

### McCoy-Brandt Machinery Company—Continued.

#### USED EQUIPMENT.

##### LATHES—TURRET.

24" J. & L., bar and chg'g. equip.  
24" J. & L., bar equipment.  
No. 4 W. & S. w. l., 6-hole round turret.

24" Garvin, 6-hole hexagon turret, 12" box chuck.  
B. & S. 14" h.s., 7-hole round turret, 9" box chuck.

##### MILLING MACHINES.

No. 4 Garvin plain, table 6x30".  
No. 3 Cincinnati univ., 12" div. hd., driving mechanism for spiral gra.

No. 3 Cincinnati plain, q. c. g.  
No. 3 B. & S. universal, 12" index head, table 10x50".

##### MOTORS AND GENERATORS.

30 & 20 h. p., 3-60-220 v.  
1 h. p., 3-60-220 v.  
10 h. p. Fairbanks, 2-60-440 v.  
1 h. p., 2-60-220 v., 1800 rev.  
10 & 44 h. p., series wd., 220 v., d. c.

7½ h. p. Triumph, 220 v., d. c., elev. duty  
15 & 5 h. p. G. E., 500 v., d. c.  
10 h. p. Westg., 500 v., d. c., 1250 rev.  
12½ k. w. G. E., 125 v., d. c., 1500 rev.  
90 k. v. a. Lincoln, 3-60-220 v.

##### PRESSES AND BRAKES.

No. 25 Niagara, arch, 21" str., 3200 lbs.  
Perkins punch, 2" stroke, 4,500 lbs.  
No. 4 Stiles, 1½" str., 5,000 lbs., pl.  
No. 65 Spe'l Toledo (cam), 7 & 4" str.  
Punch press, Bliss geared, 8,500 lbs.  
No. 64 A Perkins sgl. cr., grd., 2" str.

Consolidated, geared, 4" stroke.  
Waterbury Farrell, geared, str. 8".  
13" 6" Garrison brake or press, cap. ½", weight 118,000 lbs.  
8" Robison hand brake, cap. 16 ga.

##### PUMPS.

¾"x24" Deane deep well, 25 g. p. m. for motor drive.

¾"x10" Deane triplex, belted.  
7x5x10" Hall, duplex, steam.

##### PUNCHES, SHEARS AND ROLLS.

15" throat, single, capacity 4x1" arch jaw.  
15" throat, double, capacity 14x1" Williams-White No. 13.  
10" throat, double, capacity 2x1½" No. 11 Williams-White.  
30" throat, single, capacity 14x1" Cincinnati.  
Guillotine shear, capacity 14" rounds, Hilles & Jones.  
Guillotine shear, No. 3 Wilder, cap. 1, 1½" stroke.  
Guillotine shear, No. 6 Cleveland, 4" stroke, cap. 4½" sq.  
Guillotine shear, No. 3 Cleveland, 3½" stroke, cap. 2" sq.  
Guillotine shear, No. 5 Cleveland, 3" stroke, cap. 2½" sq.  
Guillotine shear, Cleveland, 3" stroke, cap. 2" sq.  
Slitting shear, rotary, 22" throat, cap. ½", Newbold.  
Slitting shear, rotary, 8" throat, cap. 3/16"; 15" throat, cap. ½".  
Bevel shear, Thompson, rated capacity ½".  
Squaring shear, 10½" capacity ½".  
Squaring shear, 8½" Bertsch, capacity 2/16".  
Squaring shear, 25" power, capacity 16 ga.  
Rolls, 10" Bertsch, capacity 14" gauge.

##### SHAPERS AND PLANERS.

24" Cincinnati, crank, b. g., vise. | 30"x30"x8" Gray, 1 head.  
24" Queen City, crank, b. g., vise. | 30"x30"x10" American, 1 head.

##### STEAM HAMMERS.

1000 lb. N.-B.-P. dble. frame, (4). | 700 lb. Pittsburgh, dble. frame, (2).  
700 lb. N.-B.-P. dble. frame, (6). | 600 lb. Morgan, double frame, (7).

##### MISCELLANEOUS.

Arbor press, No. 5 Greenerd.  
Bulldozer, No. 5, 6 & 7 W.-W.  
Chucks, lathe and milling machine, new.  
Compressors, 9x5x10" Westinghouse steam, (2).  
Hoist, No. 3 Canton, floor type.  
Hydraulic wheel press, 225-ton Hydro., cap. 33" wheels.  
Keyseater, No. 1 Davis, capacity 1".  
Pipe machine, 4" Williams, cutting-off tool, dies.  
Pipe machine, 8" Jarecki, dies, engine driven.  
Pipe machine, 12" Curtis & Curtis, engine driven.  
Seamer, 30" double P. S. & W., hand.  
Slotter, New York Steam Engine, 26" rotary table, 12" stroke.  
Thread roller, ½" Waterbury-Farrell, with dies.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Federal Machinery Sales Company,**  
10 N. Jefferson St., Chicago, Ill. 212 Sycamore St., Milwaukee, Wis.

USED and NEW Tools.—Immediate shipment.

#### DRILLING MACHINES.

New Champion 14" plain lever feed upright drills, (2).  
New Silver 20" stationary head drills, (6).  
New Hoeter 24" sliding head drill, b. g., p. f.  
New Richards 24" sliding head drills, b. g., p. f., (2).  
New Snyder 28" sliding head drill, b. g., p. f.  
New Cleveland 36" sliding head drill, b. g., p. f.  
Used 3-spindle Pratt & Whitney sensitive drill.  
New Henry & Wright 1, 2, 3, 4 and 6-spindle ball bearing drills, (20).  
Used 24" Dresser plain radial drill.

#### GEAR CUTTERS.

Used 24" Fellows. | Used 36" Fellows.

#### GRINDERS.

New No. 2 Gardner ball bearing disc grinder.  
New Oakley No. 2 universal cutter grinders, one with power feed, (2).  
New Ohio No. 2 universal cutter grinders, (2).  
Used Saxon horizontal surface grinder, table 36"x12".  
Used Pratt & Whitney 6"x48" plain grinder.

#### LATHES.

New Dalton type B-4, 6"x36" bench lathes on legs, (8).  
New Monarch 14"x6" standard engine lathes, (3).  
New Monarch 16"x6" standard engine lathes, (3).  
New Oliver 16"x7" q. c. g. engine lathe.  
Used Flather 17"x6" q. c. g. engine lathe.  
New National 17"x6" semi-q. c. g. engine lathe.  
New National 17"x6" q. c. g. engine lathe.  
New National 17"x8" q. c. g. engine lathes, (3).  
Used 17"x10" Lodge & Davis standard engine lathe.  
New 18"x6" Hollingsworth standard engine lathe.  
New 18"x8" Hollingsworth standard engine lathes, (2).  
New National 18"x8" quick change gear engine lathes, (5).  
Used Lodge & Davis 18"x8" q. c. g. engine lathe.  
New Monarch 18"x10" standard engine lathes, (2).  
Used 18"x10" Mueller standard engine lathe.  
Used 19"x10" Lodge & Davis engine lathe.  
New Monarch 20"x10" quick change gear engine lathes, (2).  
New Monarch 20"x10" standard engine lathes, (2).  
Used 36" pulley lathe.  
Used New Haven 60"x20" bed t. g. engine lathe, with raising blocks to 79".

#### MILLING MACHINES.

New No. 0 Bristol, hand. | Used No. 2 Cincinnati, plain.  
New No. 1 Bristol, hand, (2). | New No. 2 Bristol, hand, b. g.

#### PLANERS.

Used Gray 24"x24"x6", one head. | Used Enterprise 30"x30"x6" planer,  
Used New Haven 27"x27"x7", 1 hd. | one head.

#### PIPE MACHINES.

Used Bignall & Keeler 2". | Used Victor 4".

#### PRESSES.

No. 18 Bliss, o. b. i., new, (4). | No. 21 Bliss, o. b. i., new, (2).  
No. 20 Bliss, o. b. i., new, (6). | C-3 Ferracute, o. b. i., new, (3).

#### SHEARS.

New Peck, Stow & Wilcox No. 137-A, a foot power squaring shear.  
New Peck, Stow & Wilcox No. 223, 52" power squaring shr., for No. 14 gauge.

#### SCREW MACHINES AND TURRET LATHES.

Used Hartford 4" automatic pin machine.  
New No. 4 Southworth plain head screw machine, 14".  
Used 3x36" Jones & Lamson, arranged exclusively for chucking, (3).

#### SHAPERS.

New Barker 16" b. g. crank. | Used Juengst 24", crank.  
New Barker 18" b. g. crank. | New Ohio 24", b. g. crank.

## SECOND-HAND MACHINERY

### Federal Machinery Sales Company—Continued.

#### MISCELLANEOUS.

Boring mill, vertical, 40" King, 2 heads, used.  
Cold saw, No. 3 Burr, used.  
Die filer, Handy, motor driven, 110 v., d. c., new.  
Hammer, 35 lb. Williams & White, used.  
Keyseater, No. 1 Mitts & Merrill, used.  
Riveter, No. 3-A High Speed,  $\frac{3}{8}$ " capacity, new.  
The above list is incomplete. Write us, giving specifications of anything required.

#### FOR SALE BY

**F. A. Kauffmann Mfg. Co.,** • 106 S. Second St., St. Louis, Mo.  
OIL ENGINE.

Remington upright oil engine, same as new. Apply at the above address for further particulars.

#### FOR SALE BY

**Brownell Machinery Co.,** • 11-13 Eddy St., Providence, R. I.

Cutting-off machines, H. & B. 6" accelerated speed type.	Lathe, 16"x6' Reed, r. & f.
Drill, 14" sensitive.	Lathe, 18"x8' Perkins, new.
Drill, No. 2 Langelier b. b., new.	Lathe, 20"x10' Perkins, new.
Drill, 2-spindle Henry & Wright.	Lathe, 21" Gisholt turret.
Drill, 20" Snyder, w. & l.	Lathe, 24" Gisholt turret.
Drop hammer, 200 lbs. plain.	Planer, 24"x24"x6' Putnam, new.
Drop hammer, 400 lbs. automatic.	Planer, 22"x22"x5' Whitcomb.
Gear cutters, No. 3-A Cin'tl., new.	Planer, 24"x24"x6' Whitcomb.
Grinder, No. 1 Morse, new.	Press, No. 5 Perkins, single action.
Lathe, 9"x4' Seneca Falls, new.	Press, No. 2 Standard broaching and drawing.

#### FOR SALE BY

**Niles-Bement-Pond Company,** • 111 Broadway, New York  
Located at Chicago, Boston and New York

#### LATHES.

15"x 7' P. & W. speed lathe.	16"x 8' VonWyck, quick change.
1" 4-spdl. old style Acme auto.	24" size I Gisholt, 220 v., d. c., m. d.
1" Spencer single turret automatic.	28" Milwaukee turret lathe.
2"x24" Jones & Lamson, cone head.	

#### PLANERS.

30"x30"x 6' Pond, 2 heads.	72"x34"x10' Pond.
30"x30"x 8' Pond, 2 heads.	72"x72"x18' Pond.
30"x30"x10' Pond, 2 heads.	

#### DRILLING AND BORING MACHINES.

60" Niles gooseneck drill.	Radial, 5' Niles semi-univ.
14" 4-spindle turret drill.	Radial, 6' Niles semi-univ.
17" 4-spindle gang drill.	2" sp. old style horizontal boring and drilling machine.
3' Grant radial drill and boring mch.	

#### MISCELLANEOUS.

Blower, steel pressure, No. 10 Sturtevant.	Grinder, wet saw, No. 1 Tindel.
Boring mill, horiz., 4 $\frac{1}{2}$ " spindle, 9' table, Bement.	Grinder, cutter, No. 1 Cincinnati.
Gear cutter, spur, 42" Bement.	Grinder, wet, dbl., 24" cup wheels.
Gear planer, bevel, 42" Gleason, old style.	Grinder, 16x66 No. 4 Landis univ.
	Miller, No. 3-H LeBlond universal.
	Saw, cold, P. & W., 8" capacity.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Riverside Machinery Depot, 25 St. Aubin Ave., Detroit, Mich.**  
**Telephone, Edgewood 1582**

#### NEW LATHES.

- 24"x12' Springfield Ideal h. d. engine lathe.
- 18"x 8' Springfield Ideal g. h. tool lathe.
- 16"x 6' Filsmith q. c. lathe, (2).
- 15"x 6' South Bend standard lathes, (3).
- 7"x12' Precision bench lathe, Potter.

#### NEW SHAPERS AND MILLERS.

- 25" Springfield h. d., b. g. cr. shaper.
- 16" Springfield b. g. cr. shapers, (2).
- 24" Milwaukee b. g. cr. shapers, (2).
- 20" Milwaukee b. g. cr. shapers, (2).
- 16" Milwaukee b. g. crank shaper.
- 30" Columbia crank shapers, (2).
- No. 1 U. S. hand miller.
- No. 1 Garvin hand miller.
- No. 1 Burke bench miller.
- No. 3 Burke bench hand miller.
- No. 0-B Fox millers, (2).
- No. 1 Dow b. g. plain miller.

#### NEW GRINDERS AND PLANER.

- No. 4 Clizbe bench casting gr., (2).
- No. 3 Clizbe casting grinders, (8).
- No. 2 Clizbe casting gr., on st., (3).
- No. 3 Champion bench casting gr.
- No. 0 Champion bench casting gr., (3).
- W. & M. Yankee drill grinders, (2).
- No. 1 Thompson univ. tool & cutter.
- Temco electric grinder on pedestal.
- Temco D electric motor grinder.
- Temco G bench electric grinder.
- Hand electric grinder.
- Dumore a. t. p. grinders, (5).
- Dumore b. t. p. grinder.
- Dumore g. a. c. elect. type gr., (2).
- 24x24x6 Wilson metal planer.

#### NEW HAMMERS AND DRILLS.

- 50 lb. Mayer power hammer.
- 25 lb. Mayer hammer.
- 20" Milwaukee w. & l. f. drills, (7).
- 20" Champion b. g., p. f. drill.
- 14" Champion drills, (2).
- No. 32-D 14" Demco h. s. drill.
- No. 31-C h. s. drill.
- No. 22 Demco, h. s. bench drills, (2).
- 14" Excelsior drill.
- 12" Albany tool room friction drill.
- No. 1 Langelier h. s. drill.
- 10" Winterhoff sensitive drills, (6).
- No. 153 Buffalo hand post drill.
- No. 0 Burke bench drills, (2).
- 10" No. 0 Burke bench drills, (3).
- No. 101 3/4" Canedy-Otto floor radial.
- No. M Dumore sen. electric drill.

#### NEW PRESSES.

- No. 3 Sidney presses, (2).
- No. 2 Sidney belted presses, (4).
- No. 1 Sidney belted presses, (4).
- No. 0 Atlas arbor presses, (3).
- No. 3-A Atlas arbor presses, (2).
- No. 4-M Atlas press.
- No. 1 Springfield straight'g press.
- No. 0 Springfield straight'g press.
- No. 00 Springfield straight'g press

#### USED LATHES.

- 28"x14' Fay & Scott.
- 26"x14' P. & W. standard.
- 24"x12' Perkins, blocked.
- 21"x10' Porter standard.
- 20"x10' W. & B. gear head lathe.
- 18"x 8' LeBlond.
- 16"x 8' L. & S. q. c.
- 16"x 8' Porter standard.
- 16"x 8' American, q. c.
- 84" Fitchburg Lo-Swing lathe.

#### USED TURRET AND SCREW MACHINES.

- 18x6 Springfield Fox b. g. turret lathe.
- 14x5 Hendey turret lathe.
- 12x4 Warner & Swasey turret lathes, (3).
- 12x4 Bardons & Oliver turret lathe.
- 12x4 Pearson turret lathe.
- 11" No. 107 Wells & Son turret lathes, (2).
- 28" Niles-Bement-Pond rigid turret lathe.
- 14" Warner & Swasey turret lathe.
- 3x36 Jones & Lamson flat turret lathes, (2).
- No. 2 Warner & Swasey hand screw machine.
- No. 2 S. & K. hand screw machine.
- No. 3 S. & K. screw machines, (2).
- 4" Cleveland automatic screw machine.
- 2" Cleveland automatic screw machines, (2).
- No. 515 National Acme 4-spindle automatic.
- No. 52 National Acme 4-spindle automatics, (4).
- No. 53 National Acme 4-spindle automatic.
- 4 1/2 Gridley automatic.

## SECOND-HAND MACHINERY

### Riverside Machinery Depot—Continued.

#### USED SHAPERS AND MILLERS.

16" Fox crank shaper.  
16" Hendey geared shaper.  
14" Hendey fric. metal shapers, (5),  
Warner & Swasey miller.

Fosdick 3 $\frac{1}{2}$ " horizontal miller.  
No. 10 Beaman & Smith 3 $\frac{1}{2}$ " horiz.  
miller.  
60" Bickford vertical s. h. miller.

#### USED GRINDERS AND PLANERS.

No. 3 Detroit floor casting grinder.  
14x45" Standard low floor casting  
grinder.

24" Disc grinder press.  
No. 34 horizontal disc grinder.  
Van Dorn portable electric grinder.

No. 14 dbl. end pedestal casting gr.  
Iron Foundry Builders pedestal  
casting grinder.

P-Tool electric grinder.  
Dumore Jr. electric grinders, (3).  
No. 1 Landis internal grinder.

8x1 Casting grinder on stand.  
American drill grinder.

Morse face grinder.  
28x7 planer type surface grinder.

W. & M. tool drill grinder.  
Washburn drill grinder.

No. 6 Bryant chucking grinder.  
52x45x13 $\frac{3}{4}$ " Patch 2 head open side  
planer.

Yankee drill grinder.

46x40x13 $\frac{3}{4}$ " Patch 2 head open side  
planer.

No. 20 Landis plain external grinder.

44x34x11 $\frac{1}{4}$ " Lincoln 2 head open side  
planer.

No. 60 Heald cylinder grinder.

48x13 Bedford planer.

No. 24 Woods univ. tool and cutter.

Cutter and reamer grinder.

6-A Gorton universal disc grinder.

#### USED HAMMERS AND DRILLS.

25 lb. Standish foot hammers, (2).

14" Foote-Burt 4-spindle gang.

14" Henry & Wright h. s. drill.

Foote-Burt 4-spindle multiple.

16" Fox drill.

14" 6-spindle Fox gang, (2).

10" No. 0 Barnes friction drills, (2).

16" Natco drill.

No. 1 Burke bench drill.

12-spindle Pratt & Whitney multiple.

6" American radial.

#### USED GEAR CUTTERS.

3-36 B. & S. auto. spur and bevel.

38x5 Fellows gear shaper.

1-26 B. & S. auto. spur & bevel, (4).

#### HEAT TREATING EQUIPMENT.

New No. 12 Eagle carbon steel furnace.

New No. 14 Eagle carbon steel furnace.

New No. 20 Eagle high speed furnace.

No. 5-A used Frankfort furnace.

No. 0 used Stewart lead hardening furnace.

No. 3-A used Bellevue carbon steel furnace.

New No. 35 Connersville pressure blowers, (2).

New No. 40 Connersville pressure blowers, (2).

New No. 50 Connersville pressure blower.

New No. 60 Connersville pressure blower.

Complete Brown h. r. high resistance pyrometer equipment, complete with  
recorder.

#### USED PRESSES.

No. 14 Consolidated, o. b. i.

No. 39 Bliss horning press.

No. 0 Consolidated, o. b. i.

Woods hand screw press.

No. 267 Consolidated, d. a., geared.

No. 82 Niagara kick press.

Waterbury Farrel, straight sided.

Kick or foot power press on legs.

No. 19 Bliss o. b. i.

No. 162 Parrant stand foot presses,

No. 4 Niagara, o. b. i.

(2).

No. 02 Bliss power press.

Bench foot presses, (2).

Steam and Gas Engines, Electrical Equipment, Furnaces, Tanks, Woodwork-  
ing and hundreds of other machines too numerous to mention.

Send for our new Stock List.

### FOR SALE BY

Swind Machinery Co.,

Widener Bldg., Philadelphia, Pa.

#### ROTARY SHEAR—NEW.

Rotary ring and circle shear, capacity No. 10 gauge, circles 10" to 60" di-  
ameter, cutters 5".

## SECOND-HAND MACHINERY

### FOR SALE BY

**Brown-McDonald Machinery Co., 2323 N. 9th St., St. Louis, Mo.**  
BORING MILL.

48" Bullard, vert., 1 plain & 1 swivel hd. on cross rail, face plate jaws, used.

### LATHES.

13"x 6' South Bend, c. r., h. s., new.

14"x 6' Flather, c. r., h. s., used.

15"x 8' South Bend, c. r., h. s., new.

16"x 8' South Bend, c. r., h. s., new.

16"x 8' Walcott, q. c. g., d. b. g., c. r.  
h. s., new.

20"x10' Walcott, q. c. g., d. b. g., c. r.  
h. s., new.

16"x 8' American, q. c. g., used.

20"x10' Walcott & Wood, h. s., cpd.  
r., used.

20"x8' Oakley, d. b. g., not screw  
cutting, used.

14"x 6' Fitchburg s. s. p. r., used.

14" Pierce plain head, turret, new.

22" Davis, b. g. turret, used.

### DRILLING MACHINES.

No. 1 Burke, bench, with chucks,  
new.

No. 28 Western Chief, bench, new.

14" Excelsior 2 tables, new.

2 spindle Kern, b. b., cap.  $\frac{3}{4}$ ", 16"  
swing.

2 $\frac{1}{2}$ " Dreeses simplex radial, with tap-  
ping attachment.

3 $\frac{1}{2}$ " No. 101 C-O radial new.

20" Silver, s. b., w. & l. new.

20" Silver, s. b., b. g., p. f., new.

20" Excelsior, s. b., b. g., p. f., new.

24" Bickford, s. h., lever, used.

26" Aurora, b. g., p. f., new.

30" Prentice, s. b., s. h., p. f., used.

24" Bickford, s. h., b. g. & p. f.

### SHAPERS.

16", 20" & 24" Milwaukee, b. g., latest improved, new.

14" Steptoe, single gear, used.

### SCREW MACHINES.

No. 3 Smurr & Kamen, plain head, new.

No. 4 Smurr & Kamen, geared friction head, p. f. to turret, new.

Wood, Tilted Turret.

### MILLING MACHINES.

No. 1 U. S. hand, vise and arbor, new.

No. 3 LeBlond plain, with dividing head, used.

No. 3B Owen plain, with vertical attachment and dividing head, used.

No. 3 Garvin, hand, used.

No. 2 Pratt & Whitney, Lincoln type.

### PRESSES.

No. 1 Bauroth, o. b. i., new.

No. 3 Loshbough-J., o. b. i., new.

No. 4 Loshbough-J., o. b. i., new.

No. 3 Koehler, o. b. i., used.

### SAWS.

Nos. 1 & 2 Marvel, draw cut, new.

No. 1 Racine high speed, new.

### GRINDERS.

Nos. 1, 2 & 3 Western, d. e., new.

Nos. 1, 2 & 3 St. Louis, d. e., new.

No. 20 Safety E. W. Co., elec. (4).

U. S., electric, 110 v., d. c., bench.

Heald, ring, 8", used.

Essley, cylindrical.

No. 1 La Salle plain and surface,  
new.

### COMPRESSORS.

Nos. 2, 3 & 4 Model B, vert., belted,  
new.

Norwalk, steam, 1000 cu. ft.

6x6 Star vertical, belted, single cyl-  
inder, double acting.

### MISCELLANEOUS.

Brake, 8' Dreis & Krump, steel, new.

Motor, 10 h. p. Wagner, 60 cy., 3 p.,  
440 x., 850 r. p. m., used.

Pipe mch., No. 86 Forbes, 4", used.

Pipe machine, 3" Borden, hand.

Planer, 36"x36"x12' Patch, o. s., 1 hd.  
on cross rail, 1 head on side, used.

Rivet spinner,  $\frac{1}{2}$ ", Grant, bench.

Large stock of tinners' tools.

### CHUCKS.

5", 7 $\frac{1}{2}$ " & 9" 3-jaw Sweetland, scroll,  
new.

8" & 12" 4-jaw Sweetland, ind., new.

5", 6", 7 $\frac{1}{2}$ ", 9" 3-jaw Cushman, univ.,  
used.

No. 18 National Acme, s. o., die hd.

12" 4-jaw Simplex, ind., new.

12" 3-jaw Manufacturers Equipment  
Co. air chucks, used.

16" 4-jaw Wescott, combination, cut-  
ting off.

20" 4-jaw Whiton, ind., used.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Stocker-Rumely-Wachs Co.,**

**117-121 N. Jefferson St., Chicago**

In stock for immediate delivery.

### DRILLING MACHINES.

Rockford bench.  
10" W. F. & J. Barnes, friction.  
14" Washburn sensitive.  
14" Rockford sensitive.  
Allen single spindle ball bearing.  
Taylor & Fenn sgl. spld. high spd.  
16" Cincinnati.  
20" Mechanics, friction.

20" Barnes all geared.  
25" Prentice, s. h., p. f.  
24" Fosdick radial.  
5" Fosdick & Holloway radial.  
6" Gang radial.  
14" Leland-Gifford 3 spindle.  
B. F. Barnes 2 spindle.  
12" Leland-Gifford 4 spindle, b. b.

### GEAR CUTTERS.

No. 2 Standard.  
24" x 7" Gould & Eberhardt, for spur gears.  
20" x 8" Gould & Eberhardt, for spur gears.  
72" x 18" Newton, for spur and bevel gears.  
No. 3 Farrell hobber.

### GRINDERS.

No. 1 Cincinnati, universal tool and cutter.  
6" x 20" No. 10 Brown & Sharpe cylindrical.  
12" x 48" Modern cylindrical.  
10" x 24" No. 21 Landis cylindrical.  
No. 2 Landis cylindrical, universal.  
No. 6 Modern internal.  
No. 7 Gardner, disc.

### LATHES.

12" x 7" South Bend, compound rest.  
14" x 6" Flather, compound rest, taper.  
18" x 6" Bradford, compound rest.  
24" x 12" Schumacher & Boye, compound rest.  
24" x 12" Rahn-Larmon, compound rest, double back gear.  
28" x 18" New Haven, compound rest.  
37" x 18" Fifield, compound rest.

### MILLING MACHINES.

No. 6 Whitney, hand, dividing head.  
No. 2 Cincinnati plain.  
No. 2 Le Blond plain.  
No. 3 Owen plain.  
No. 3 Becker vertical.  
No. 5-C Becker, vertical.  
No. 14 Pratt & W. 2 spindle profiler.  
Eynon-Ingersoll slab miller.

### PUNCHES AND PRESSES.

No. 3 Bauroth, o. b. i.  
No. 3 Massillon, o. b. i.  
No. 4 Loshbough-Jordan, o. b. i.  
No. 84 Perkins sprue cutter.  
No. 2-P American Can.  
No. 16 Bliss horn press.  
No. 39 Bliss horn press.  
No. 2-A Bliss double crank geared press, 10" stroke.  
No. 4-T American Can double crank geared press, 6" stroke.  
No. 205H Toledo crank geared press (new), gap pattern, 96" bet. housings.  
No. 3 Ryerson geared punch, 4" x 1".  
No. 7 Massillon, single end punch and shear, 36" throat, arch. jaws, capacity 1 1/2" thru 1", new.

### SCREW MACHINES.

No. 2 Foster, plain head, a. c. & w. f.  
No. 2 Acme, plain head, a. c. & w. f., power feed to turret.  
No. 6 Foster, friction, a. c. & w. f., power feed to turret.  
4" 1/2" Cleveland automatic, plain.  
No. 2 Foster, friction head, a. c. & w. f., power feed to turret.

### MISCELLANEOUS.

Boring mill, 60" Bullard, 2 swivel hds.  
Metal splitter, Gray.  
Shaper, 16" Baker, vertical.  
Tapping machine, No. 2 Garvin.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Simmons Machine Co., Inc., Albany, N. Y.**  
**1001 Singer Bldg., New York**      **358 Ellicott Square, Buffalo**  
**804 Dime Savings Bank Bldg., Detroit**

Equipment for Immediate Delivery

#### MILLERS.

- |                                 |                     |
|---------------------------------|---------------------|
| No. 2 Owen plain.               | No. 3-B Owen plain. |
| No. 3-H LeBlond universal, new. |                     |

#### GRINDERS.

- |                                     |   |
|-------------------------------------|---|
| No. 5 Brown-Sharpe universal.       | No. 3, 4, 5, self-contained c. s. new, (2). |
| No. 23 Brown-Sharpe internal.       | Dumore Junior elec. tool, new, (3).         |
| No. 2 Norton universal tool-cutter. | Springfield wet grinder.                    |
| Dumore electric, new, (8).          | 8", 1" and 1 1/2" emery stand.              |

#### LATHES.

- |                          |                                       |
|--------------------------|---------------------------------------|
| 14"x 8' Putnam.          | 24"x 10' Flather.                     |
| 14"x 6' Lodge-Shipleigh. | 26"x 8' Reed.                         |
| 16"x 6' Reed.            | 28"x 12' Boye & Emmes.                |
| 18"x 6' American.        | 30" English lathe.                    |
| 20"x 8' American.        | 34"x 18' Pond.                        |
| 20"x 8' Fitchburg.       | 38"x 14' David W. Pond.               |
| 20"x 8' Pond.            | 42"x 12' Fifield, triple geared, (3). |
| 20"x 10' Monarch, new.   | 24"x 36' Marvel lathes, (2).          |

#### PLANERS.

- Used 38"x 38"x 8" Planer, one rail head, one side head.  
 Reliabuilt 39"x 33"x 10' Cincinnati, one head.  
 New Model "B" 42"x 42"x 12' openside, one rail head, one side head.  
 Reliabuilt 60"x 48"x 13' Lincoln, 4 heads, Sellers spiral gear drive.  
 Reliabuilt 66"x 52"x 13' 6 planer, two heads.  
 Reliabuilt 73"x 48"x 13' Lincoln, 4 heads, Sellers spiral gear drive.  
 Used 14' Hilles-Jones plate planer.

#### DRILLING MACHINES.

- |                                      |  |
|--------------------------------------|--|
| Moline "Hole Hog", (3).              | U. S. portable electric radial.              |
| 3' Drees plain radial.               | No. 36-20' Canedy-Otto stationary head, new. |
| 5' Bickford plain radial.            | 14" Sensitive drills, (2)                    |
| 7' 3" Warren semi-universal radial.  | No. 101 Canedy-Otto 34' radial, new.         |
| 3-spindle Sipp high speed sensitive. | No. 1 Burke bench drills, new, (3).          |
| 26" Barnes, sliding head, (3).       |  |

#### AUTOMATICS.

- |   |                                    |
|---|------------------------------------|
| 2" Cleveland Model "A" 5-hole turret (2). | 4" National Acme auto., four spdl. |
| 2" Cleveland auto., 5-hole turret, (2).   | No. 55 National Acme auto., (2).   |
|   | No. 52 National Acme automatic.    |

#### SCREW MACHINES AND TURRET LATHES.

- |   |                                    |
|---|------------------------------------|
| 2"x 24" Jones-Lamson with bar and chucking equipment. | No. 324 Garvin turret lathes, (1). |
| 3"x 36" J. & L., bar and chuck., (2).                 | 20"x 8' Bridgeport turret lathe.   |
|   | Conradson turret lathe, 24" swing. |

#### BORING MILLS.

- |                              |                            |
|------------------------------|----------------------------|
| No. 31 Lucas horizontal.     | Bement horizontal, 24" bar |
| 34" King vertical, swing 36" | 48" Niles car wheel borer. |

#### MISCELLANEOUS.

- |   |   |
|---|---|
| Arbor press, Greenerd No. 5.                                | Presses, foot, Perkins, (2).                          |
| Broaching mch., No. 2 J.N. Lapointe.                        | Pump, Gould triplex, with motor.                      |
| Dictaphones—Ediphones (8), and 1 shaving machine with motor | Saw, 4" Cochrane-Bly.                                 |
| Gear cutter, No. 2 Whiton.                                  | Sawing, filing and lapping machine, Oliver, new.      |
| Hack saws, No. 1 Racine hi-spdl., (8).                      | Shear, Lennox rotary bevel.                           |
| Pipe machine, 2" Jarecki No. 7.                             | Shear, 36" Q. C. power squaring.                      |
| Pipe machine, 8" Cox.                                       | Shear and punch, 24" Niagara deep throat, hand lever. |
| Press, No. 3-W Bliss.                                       | Time clocks, International, (3).                      |
| Presses, power, Nos. 1, 2, 3 Sidney, new, (2).              |   |

#### WOOD-WORKING MACHINERY.

- |                                  |                                  |
|----------------------------------|----------------------------------|
| Band saw, 36"                    | Sander, vertical.                |
| Borer, universal.                | Sander, 3-roll drum, Fay & Egan. |
| Jointer, 16" Greaves-Klusman.    | Saw table, iron frame.           |
| Planer, pony, 24"                | Shaper, 2 spindle.               |
| Router, New Britain No. 2 chain. | Swing saw.                       |



## SECOND-HAND MACHINERY

### FOR SALE BY

**W. J. Baird Machinery Co., 265 Jefferson Ave., Detroit, Mich.**

Desirable Tools for Immediate Delivery

#### DRILL PRESSES.

- 24" Aurora, sliding head, b. g., power feed, s. h.
- 20" Silver, power feed, b. g., new, (4).
- 20" Silver, wheel and lever feed, new, (6).
- 20" plain Canedy-Otto, wheel and lever feed, new, (4).
- 3' Prentiss cone driven radial, used.
- 2-spindle Demco h. s. ball bearing, floor type, new.
- Single spindle Demco ball bearing, bench type, new.
- 2-spindle Demco h. s. ball bearing, floor type, new.
- Lindgren 15" gear driven sensitive, new, (2).
- U. S. sensitive, sliding head, tilting table, (4).
- 20" Excelsior, plain wheel and lever feed, automatic stop, (2).

#### GRINDERS.

- No. 2 Bath universal, complete with regular equipment, s. h., good condition.
- No. 1 Wilmarth & Morman univ. cutter and reamer, power feed, new, (4).
- No. 1 Wilmarth & Morman cutter and reamer, hand feed, new, (4).
- No. 2 Wilmarth & Morman automatic surface grinders, new, (2).
- No. 1 LaSalle surface grinders, new, (3).
- No. 1 Fraser universal, complete with internal grinding attachment, new.
- New 15" No. 7 Valley City double end disc grinder.

#### SCREW MACHINES.

- 14" 5-hole turret Cleveland automatic, used.
- No. 5 Foster, geared head, single pulley drive, used.
- 14" Star hand screw machine, used.
- 24" National Acme 4-spindle automatic, new.

#### MILLING MACHINES.

- No. 2 Van Norman duplex, new, (2).
- No. 14 Rockford plain, cone type, new.
- No. 213 Rockford universal, cone type, complete with regular equipment, new.
- No. 2 plain h. d. cone type Rockford, new.
- No. 2 universal high power all-geared Rockford, new.
- No. 24 universal high power all-geared Rockford, new.
- Lambert horizontal all-geared, 3" bar, new.
- U. S. hand miller, new.

#### PUNCH PRESSES.

- No. 1 V. K. V. inclinable.
- No. 3 Loshbough Jordan open back inclinable, new.
- No. 4 Loshbough Jordan open back inclinable, new.
- No. 5 Loshbough Jordan geared open back inclinable, new.
- No. 2 Moore screw press.

#### SHAPERS.

- 20" Milwaukee back geared crank shapers, new, (2).
- Columbia 20" b. g. crank shaper, new.
- Queen City crank shapers, b. g., new, (3).
- 24" Hollingsworth crank shaper, b. g., new.
- No. 163 Rhodes combination vertical and horizontal crank shaper.

#### PLANEKS.

- 22"x22"x 5' Wheeler planer, s. h., fine condition.
- 42"x42"x10' Davis & Egan planer, used.
- 30"x30"x 8' Gray planer, used.
- 36"x36"x20' Gray planer, used.
- 48"x60"x20' Cleveland open-side planer, used.

#### PUNCHES, SHEARS AND ROLLS.

- 2-New 30" Pettengill rotary shears.
- 1-Set 10' Hillis Jones bending rolls, used.
- 1-Set 36" Niagara pyramid type bending roll.
- 1-Set 20" Niles plate bending rolls, used.
- 2-Sets Pettengill forming rolls, new, (2).

## SECOND-HAND MACHINERY

### FOR SALE BY

**E. L. Essley Machinery Co., 551-557 Washington Blvd., Chicago, Ill.**

#### DRILL PRESSES.

12" Rockford upright.  
No. 1 single spindle Avev.

30" Aurora, sliding head.  
No. 11 Natco multiple drills, (2).

#### GRINDERS.

No. 1 Cincinnati, universal.  
No. 1 Norton full univ. tool & cutter.  
No. 1 Le Blond univ. tool & cutter.

6"x32" Norton plain.  
No. 2 Bath universal.  
No. 1 Besly disc.

#### LATHES.

11"x 8' Star.  
13"x 6' Sebastian.  
16"x 8' Advance, q. c. g.  
18"x10' Prentice Bros., taper att.

20"x 8' Hamilton.  
22"x12' Greaves & Klusman.  
24"x12' Prentice Bros.  
36"x14' Bradford.

#### SCREW MACHINES.

No. 00 Brown & Sharpe auto. (2).  
1" Cleveland automatics, (2).  
No. 5 Pearson, hand, fric. head.  
No. 1 Foster, plain head, cap. 13-16".

1"x4" Acme, plain head.  
No. 4 Foster, plain head.  
No. 22 1/2 Garvin, 17-16" cap., fric. hd.  
1" Smurr & Kamen, plain head.

#### MISCELLANEOUS.

Air comp., 6x6 Curtis, Model "A".  
Boring mach., 3 1/2" Binsse horizontal.  
Boring mill, 36" Bullard.  
Boring mach., No. 0 Fosdick.  
Cold saw, No. 11 1/2 Higley.  
Gear cutter, No. 12 B. & S. auto.  
Gear hobber, No. 3 Barber-Col., (5).

Miller, vert., No. 4 Becker-Brainerd.  
Miller, No. 1-B K. & T. univ.  
Pipe machine, 2" Williams.  
Planer, 42"x42"x8' Whitcomb.  
Punch, No. 16C New Doty, sgl. end.  
Punch press, No. 76 Toledo, o. b.  
Turret lathe, 2"x24" J. & L.

### FOR SALE BY

**A. D. White Machinery Co., - 108-114 N. Jefferson St., Chicago.**

#### PUNCH PRESSES AND PUNCHES AND SHEARS.

No. 3 American Can, o. b. i.  
No. 4 Consolidated.  
No. 3-P Ferracute, solid back.

Waterbury reducing press, 8" str.  
No. 29 Bliss, gang, dbl. action.  
No. 6 L. & A. 6" thr., cap. 1/4" s. c.

#### DRILL PRESSES.

23" Rockford, stationary head.  
30" Bickford, sliding head.  
42" Barnes, sliding head.

1-spdl. Henry & Wright, h. s.  
42" Miles plain radial.  
New upright drills, 14" to 24".

#### ENGINE LATHES.

10"x54" Davis.  
16"x12" Beaman & Smith.  
24"x10" Putnam.

26"x25" Blaisdell.  
28"x10" Fifield.  
Niles double axle lathe.

#### GRINDING MACHINES.

11" Norton, floor, (2).  
1 1/2" Safety Emery Wheel, floor.  
2" Springfield, double wheel, floor.  
Springfield, dbl. wheel, water.

No. 2 Leland & F., water.  
No. 38 Safety Emery Wheel Co.  
plow grinder.  
10x30" Landis plain.

#### MILLING MACHINES AND PLANERS.

No. 1 Clough vert., rotary table.  
No. 3 Cincinnati plain.  
22"x22"x5' Ingersoll slab.

No. 6 Becker Brainerd, Lincoln.  
16"x16"x36" Draper planer.  
30"x27"x 6' Putnam planer.

#### SCREW MACHINES.

7-16" Cleveland, friction feed.  
1" Cleveland, friction feed.  
1 1/2" Cleveland, friction feed.  
1 1/2" Cleveland, jigger feed.

1" Hartford, (3).  
1" Cleveland.  
1 1/2" LaVigne.  
1" Cleveland, semi-automatic.

#### MISCELLANEOUS.

Die filing machine, Simplex.  
Gas engine, 35 h. p. Columbus.  
Gas engine, 55 h. p. Bruce McBeth.  
Hammer, 500-lb. Sandage.  
Hobber, No. 1 Farwell.

Keyseater, No. 3 Mitts & Merrill.  
Oil gas generator, No. 3 American.  
Saw, No. 5 1/2 Nutter-Barnes.  
Turret lathe, 24"x26" Greenlee.  
Turret lathe, 20" Fay & Scott.

## SECOND-HAND MACHINERY

### FOR BY SALE

Cyril J. Bath & Co.,

721 St. Claire Ave., N. E., Cleveland, O.

Stock now on hand.

### AUTOMATICS.

P. & J. 7"x14" large arm auto. chucking machine, very fine shape, low priced.  
1 1/2, 2 & 4" Gridley single spindle automatics, in fine condition.  
No. 33 New Britain auto. chucking machines, five stations and tapping spindle, handle work up to 2 1/2" diameter in chuck jaws and 5 1/4" swing outside chucks, very good. (3).

### BAR STOCK MACHINES.

No. 4 Warner & Swasey screw machine, wire feed, friction back grd., power feed to turret, large equipment, collets and round turret; good.  
14" Universal 5-spdl. automatics with large equipment; good condition, (2).  
4 1/2"x30" Bardons & Oliver, with all geared head, motor driven, with motor, capacity up to 4 13-16" stock, large equipment; excellent condition.

### BORING MILLS.

42" Niles-Bement-Pond, one turret, one plain head, late model, fine shape.  
42" Bullard, double swivel head, rapid production type, good condition.  
51" Niles double swivel head with 4-face plate jaws, friction feed, table and all parts in fine shape.  
4-spdl. Foote-Burt vert. cylinder boring mch. with sp. adj. in pairs, 4" fixed centers, 5" min. adj. bet. inside spdls.; cone dr.; table fd.; excellent shape.

### BULLDOZER.

Ajax No. 7 hi-speed, steel bed, 16" stroke, late model, ram face 6' 4"x12", gearing ratio 16:1; 30 strokes per min., double geared; fine; with motor.

### DRILLING MACHINES.

2-Spindle 14" Henry & Wright sens. ball bearing drill. Table 17"x12".  
3" Mueller plain radial drill; good condition.  
3" Fosdick plain radial, cone drive, gear feed, very good.  
No. 11 Natco 8-spindle multiple, can be used with 10 spindles. Max. drilling area 12"x1"; min. 4"x1", belt feed; fine shape.

### GEAR CUTTER.

26" No. 3 Brown & Sharpe plain spur, with all parts; very good condition.

### GRINDERS.

Bristol 15" vertical round surface grinder.  
Landis No. 23 plain, 16"x42", with heads if desired, for crankshaft grinding; good condition.  
No. 60 Heald cylinder grinder, very good condition.

### LATHES.

14"x6' Prentiss, comp., one chuck, loose change gears; very good.  
24"x10' American production lathe, good condition.  
24"x11' Johnson, gear fd., comp. r., hollow spindle, complete; good condition.  
24" Gisholt turret, late model, motor dr., t. a., large equip., very fine cond.

### MILLERS.

No. 60 Brown & Sharpe plain hand miller; good.  
No. 6 Whitney plain hand miller; good.

### PLANERS.

24"x24"x6' Putnam, single head, light model; good shape.  
36"x36"x14' Pond, single hd., in good condition, with table 6" thick, no broken T slots or pegged gears; a good rugged tool.

### PRESSES.

No. 2 Waterbury Farrell rack and pinion press, 25" stroke, weight about 7,500 lbs.; very good condition.  
Niagara No. 4, No. 5 & No. 6 inclinable presses, standard; all new.

### SAWS.

No. 2 heavy friction Ryerson saw, 35 h. p. motor, capacity 15'-40 lb. beam, continuous cutting, length of str. 30", wt. 6000 lbs., good; 220 v., 60 cy., 3 ph.  
No. 3 Ryerson friction saw, motor dr. and feed cap. for 24" beams or equal, 45-90 h. p. motor, weight about 12,000 lbs.; 220 volt, 60 cycle, 3 phase motor.  
6" and 9" Peerless high speed saws in stock; new.

### MISCELLANEOUS.

Gear testing machine, Brown & Sharpe.  
Running balance machines, Norton, for balancing crankshafts, armatures, and similar running parts, almost new and motor driven, (2).

## SECOND-HAND MACHINERY

### FOR SALE BY

**Chas. Molitor Machinery Co., 124 S. Clinton St., Chicago, Ill.**

Special Bargains

#### MILLERS AND GRINDERS.

No. 2 Brown & Sharpe plain.	No. 2 Owen universal miller.
No. 2 Osterlein univ., vert. attach.	No. 15 Garvin plain.
No. 2 Brown & Sharpe univ. grinder.	No. 5 Burke hand miller.
U. S. hand miller.	Knight drill and milling machine.

#### PLANERS AND SHAPERS.

26"x26"x 6' New Haven.	51"x51"x13' New Albany.
25" Milwaukee, b. g.	20" Hendricson, geared.
28" Smith Mills, geared.	18" Barker, b. g.

#### TURRET LATHES AND SCREW MACHINES.

No. 6 Foster, (3).	Jones-Lamson 3", single pulley.
No. 6 Foster, air chuck.	Jones-Lamson 2", single pulley.
20 Drees Fox turret.	4" Pearson.

#### LATHES.

22"x1' American, quick change, with turret, single pulley.	26"x14' Davis.
	36"x16' Putnam.

#### MISCELLANEOUS.

Band saw, metal, 30" Klemm.	Drill, 8-spindle gang, P. & W.
Brake, power, 8', 8 ga.	Radial, 42" Mueller.
Filing machines, Cochrane-Bly, (2).	Shear, pwr. square, 6' Bertsch. 10 g.
Drill, 10-spindle Nadco	Shear, sq., 10' Niagara, ft. p., 20 g.

### FOR SALE BY

**The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.**

#### ENGINE LATHES.

14"x 6' Blaisdell, r. & f. rest.	7"x3' Dalton, c. r., on stand.
14"x 6' Flather, p. r.	10"x 4' Pratt & Whitney, r. & f., t. a., draw-in attach., collets, pan bed.
18"x10' Springfield, c. r., 5-step cone.	14"x 6' Flather, c. r., 4-step cone.
18"x10' LeBlond, c. r. & t. a., 5-step cone, (2).	22"x12' Walker, p. r., with raising blocks.
16"x 6' Goddard, r. & f. rest.	

#### TURRET LATHES.

24" Davis turret boring & chucking lathe, with vert. forming attach.	14" Lodge & Davis, plain head.
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#### SCREW MACHINES.

2" Cleveland full automatic.	No. 33 New Britain multiple spindle automatic.
No. 00 Brown & Sharpe automatic.	1" Pratt & Whitney screw machine complete.
1" Hartford full automatic.	
2" Hartford full automatic.	

#### GRINDERS.

Warner & Swasey cock grinder.	Greenfield univ. cutter & reamer.
Type "DE" Hisey-Wolf internal.	20" Whitney wet tool.

#### HAMMERS.

Coffman, post, power dr., 25 lbs., c. s.	100 lb. Cady, belt drop, c. s.
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#### GEAR CUTTERS.

No. 2 Whiton automatic.	26" No. 3 Brown & Sharpe auto.
36" No. 4 Brown & Sharpe auto.	36" Fellows gear shaper.

#### KEYSEATERS.

Mitts & Merrill, square frame.	No. 2 Mitts & Merrill.
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#### MISCELLANEOUS.

Arbor press, No. 2 Greenerd.	Saw sharpener, No. 10 Cochrane-Bly automatic.
Cold saws, 12" Burke, (2).	Shears, 30" Niagara foot-power squaring.
Cold saw, Higley.	Shear, 62" Niagara No. 362 power squaring.
Drill, 5 spdl. Detroit semi-auto.	Shear, No. 183 P. S. & W. power squaring.
Drill, sgl. spdl. Leland, ball bearing.	Welder, No. 4-A 110 volt Federal.
Filing machine, Simplex.	
Lathe, Resek, double end.	
Punch, foot power.	
Punch press, No. 20 Bliss plain fly-wheel.	

## SECOND-HAND MACHINERY

### FOR SALE BY

Harris Brothers Company, - 35th & Iron Sts., Chicago, Ill.

#### SHEARS.

Weiner & Pels steel plate angle and I-beam shear, for 15" beams.

Single end shear, 22" throat, punches 1½" thru 1".

Single end shear, 11" throat, shear 8"x1½".

Single end punch, 27" throat, punches ½" thru ¾".

Double end punch, Long & Allstatter, 24" throat one side, 8" throat other side, capacity 1" thru 1½".

#### ENGINE LATHES.

14"x 6' Springfield.

16"x 6' Fay & Scott.

17"x20' Linderman double spindle shell lathe.

18"x12' New Haven.

20"x 8' Pond.

24" Potter & Johnston.

#### PUNCH PRESSES.

No. 4 Bliss, solid back, b. g.

Queen City, solid back, 5½" throat.

Queen City, solid back, 9½"x9" horn.

#### BENDING ROLLS.

12' Niles bending roll for ¾" plate.

Power bending rolls, 10' long, for 3/16" plate.

Boilermakers' plate flanging clamp, 12' long.

#### SHAPERS.

Pedrick & Ayer, open side, traveling head, 20" stroke.

30"x30"x 8' Putnam planer.

#### DRILL PRESSES.

Baush 8 spindle universally adjustable sliding head multi-spindle drill.

6 spindle Woodward & Rogers, ½" capacity.

20, 26 and 28" upright drills, (3).

2 spindle Hoefler adj. gang drill, No. 5 Morse taper in spdls., table 18"x56".

#### MILLING MACHINES.

New 48" swing No. 6 Becker latest model univ. improved stand. vert., (2).

48x36x12 planer type Ingersoll slab miller.

Garvin No. 3 hand millers.

#### PIPE MACHINES.

4" Armstrong pipe machine.

| 4" Merrill pipe machine.

#### SCREW MACHINES.

1" Kempsmith hand screw machine.

1½, 2" and 2½" Cleveland automatics. | ½" Pratt & Whitney double spindle automatic.

#### HAMMERS.

50-lb. Novelty trip hammer.

#### BORING MILLS.

5' Michael vertical boring mill, single head on rail.

#### MISCELLANEOUS.

Buffing stands, (20).

Cold saw, No. 21 Higley.

Cold saw, Q. & C., for 8" rounds.

Gate shear or multiple punch, 60" Queen City.

Gear cutter, 60" Niles semi-automatic spur.

Gear hobber, No. 5 Lees-Bradner.

Grinders, double end heavy floor, for 24x4" wheels.

Grinder, Middleditch combination drill and tool.

Hydraulic presses, 60 and 80 ton, vertical.

Keyseater, 1" Morton.

Nut tapper, No. 4 Road automatic.

Shear, Lennox serpentine.

Steel brake, Dreis & Krump, 10', for 18 gauge.

## SECOND-HAND MACHINERY

### FOR SALE BY

**B. C. Allen Machinery Co.,**

**104 S. Clinton St., Chicago**

Band saw, metal.....	\$ 125.
Blower, No. 4 Buffalo.....	30.
Boring machine, Hoefler 2 sp.	1700.
Boring machine, 48" car wheel	1000.
Bolt cutter, 1 1/2" Acme.....	150.
Brakes, 4' 865: 5'.....	80.
Chucks, 6, 9, 10, 14, 15".....	
Drill press, 14" sensitive.....	35.
Drill press, 20" w. & l.....	75.
Drill press, 24" sliding head...	125.
Drill, radial, 4'.....	350.
Keyseaters, Nos. 1 & 2 Davis	
Lathe, 13"x5' Barnes, c. r., c. f.	150.
Lathe, 14"x 8' Flather.....	300.
Lathe, 16"x 8' L. & Davis.....	350.
Lathe, 2x24" I. & L., grd. hd.	650.
Lathe, 18"x8' Barnes, c. r., c. f.	550.

Lathe, 20-28x14' gap.....	\$ 800.
Lathe, 32"x14'.....	400.
Lathe, 36"x16' triple geared...	2000.
Miller, No. 2 P. & W., hand...	175.
Miller, No. 2 Kempsmith pl.	950.
Miller, No. 1 1/2 Rockford plain	725.
Pipe machine, 2".....	100.
Pipe machine, 2" Jarecki.....	125.
Planer, 24"x24"x4 1/2'.....	400.
Planer, 36"x36"x10' N. Haven	900.
Punch press, No. 41 Toledo...	125.
Punch presses, Nos. 2, 3 and 4	
Shaper, 12" Smith & Mills...	250.
Shaper, 20" Smith & Mills...	1100.
Shear, 36" square.....	40.
Shear, 10' Niagara, 20 gage...	300.
Screw machine, 2 1/2' Foster...	900.

### FOR SALE BY

**The Osborne & Sexton Machinery Co.,**

**Columbus, Ohio**

#### LATHES.

9" to 13" Barnes, h. s., cp. r., new.
13-15-16 and 18 O. & S., h. s., c. r., new.
13"x 5' LeBlond, hollow spindle.
14"x 6' Hamilton, h. s., comp. rest.
18"x 8' Fitchburg, hol. spdl., cp. r.
<b>TURRET LATHES AND SCREW MACHINES.</b>
1" Garvin hand screw mach ne.
1 1/2" S. & K. hand screw mch. (3).
1 1/2" Tilted turret hand screw mche.

19"x12' Gray, compound rest.
20"x10' Hamilton, double back gear.
21"x10' and 24"x12' South Bend.
25"x24' Fifield.
54"x18' Pond, old style.
<b>SHAPERS AND PLANERS.</b>
No. 6 W. & S. screw machine.
2x24 & 3x36 J. & L., dbl. equipment.
4" Hartford single spindle auto.

#### SHAPERS AND PLANERS.

14" Niles, traveling head.
16, 18 & 24" Barker, back gear crank.
20" Walcott geared shaper.
22"x22"x 6", Gray, 1 head.

24"x24"x 8' American, 1 head.
32"x32"x10' Niles, single head.
36"x36"x16' Pond, single head.
60"x60"x18' Betts, 3 heads.

#### PRESSES.

No. 5 Garrison, o. b. i.
No. 2 Sidney o. b. inclinable, 1600 lb.
No. 4 Toledo, o. b. inclinable.
No. 32-P Toledo, nearly new. (5).

Pneumatic, 20 ton, 37" bet. uprights.
Perkins, dbl. crank, 16x24 bolster.
Bliss, 42,000 lbs. toggle drawing.
Covington, 10' 6" between housing.

#### DRILLS AND RADIALS.

Henry & Wright sgl. spdl., high spd.
8-spindle, gang, adjustable centers.
3 1/2" Canedy-Otto plain, new.
4" Baush plain, heavy pattern.
4 1/2" Universal, cone drive.

Sensitive 1, 2 & 3 spindle.
High speed sgl. spdl. Cleveland.
20" Aurora, with tap. attachment.
24", 26" and 28" sliding head.
Quint 6-hole turret drill.

#### MILLING MACHINES.

No. 1 1/2 Valley City universal.
No. 4 Cincinnati plain.
No. 1 1/2 American plain.

No. 1 1/2 Valley City plain, new.
No. 3 Brainard, 30x7 table.
42"x42"x10' Lincoln slab miller.

#### GRINDERS.

12"x36" Hartford, surface, new.
Landis 10x24 universal.
Litter 10x20 universal.

30x10 Webster & Perks, univ., new.
Cutter, reamer and tool, new.
Cincinnati cutter and tool.

#### MISCELLANEOUS.

Balancing machine for pulleys.
Band saws, metal, 30" Wright, (2).
Boring mill, 12", 3 swivel heads.
Boring mill, 32" Colburn, turret hd.
Bulldozers, No. 25 W. & W.
Compressor, 8"x8" H. & B. belt.

Cut-off machine, 3" Davis.
Hammer, 55 Williams White Justice.
Motor, 75 h. p., 220 volt, 3 phase.
Pipe machines, 2, 4 & 6" Oster, new.
Punch and shear, 4"x4".
Straightening rolls, 57" for 3 plate.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Russell Machine Company, 28th St. & A V. R. R., Pittsburgh, Pa.**

#### LATHES.

48" Niles car wheel, m. d.  
48"x16" turning lathe, c. r., sgl. gd.  
46"x21'6" Fifield, triple geared.  
38"x25" New Haven, raised to 56".  
24"x12' Lodge & Shipley, q. c. g.  
20"x12' Prentice, h. s., c. r.

18"x 8' Lodge & Shipley, q. c. g.  
16"x10' Sebastian, h. s., c. r.  
16"x 6' Blaisdell, h. s.  
14"x 5' American speed lathe.  
16"x 5' Jones-Lamson turret lathe.  
24"x11' American semi-auto. turret.

#### PLANERS.

24"x24"x6' Lodge & Davis, 1 head.  
21"x24"x8' Chandler, one head.  
26"x26"x74" Pond, one head.  
30"x30"x10' American, one head.

48"x48"x20' Gray, 4 heads.  
72"x48"x16' Pond, 2 heads.  
80"x72"x30' Thurston-Gardner, 1 hd.

#### DRILLS AND BORING MILLS.

Burke sensitive bench Nos. 0 & 1.  
14" Woodward-R. sensitive bench.  
10" D. Slate sensitive on column.  
No. 3 Prentice port. rope drive drills.  
No. 22 Silver, new, h. p. post.  
20" Silver, new, plain and bk. gd.  
20" Foote-Burt mfrs. vertical.  
24" New Haven plain drill.

28" Cincinnati, sliding head, b. g.  
30" Hamilton, b. g., sliding head.  
36" Gould & Eberhardt, tap. attach.  
4' Fosdick plain radial, tap. attach.  
4 1/2' Bickford plain radial, tap. attach.  
Garvin 4 spindle drill press.  
48" Niles car wheel boring mill.

#### HAMMERS, BULLDOZERS AND MILLERS.

7000 lb. Morgan double leg steam hammer.  
1100 lb. Morgan single leg steam.

No. 2 Brown & Sharpe plain miller.  
Williams-White bulldozers, Nos. 5 and 6.

#### ENGINES, BOILERS AND PUMPS.

5"x5" Erie vertical steam engine.  
8"x8" Lane horizontal steam engine.  
4 h. p. Fowler vertical gas engine.  
40 h. p. Backus horiz. gas engine.

50 h. p. White-Middleton gas engine.  
50 h. p. vert. submerged tub. boiler.  
6 h. p. vertical single flue boiler, (4).  
Pumps, various sizes and makes.

#### PUNCHES, SHEARS AND PRESSES.

50" throat Reade sgl. end punch and shear; massive construction.  
No. 8 L. & A. geared s. e. punch, 34" throat.  
Industrial d. e. punch and shear, 12" throat.  
No. 1-O Doty punch and shear, b. d., 9" throat.  
Niagara No. 24 hand punch, 15" thr.

Badger 11-A alligator shear.  
Bliss geared slitting shear, 18" thr.  
Perkins No. 2 rotary shear, 12" thr.  
No. 56 double housing knuckle joint press.  
No. 3 1/2 Greenard arbor press.  
No. 4 Stevenson foot pwr. press, 6" throat.  
No. 59 1/2 Toledo drawing presses, (2).

#### MISCELLANEOUS.

Air compressor, s. cyl. 3x5", belted.  
Air compressor, double cyl. 2 1/2"x4", belted.  
Air compressor, Gardner vertical, 4 1/2"x4 1/2", b. d.  
Air compressor, 6x6 Laidlaw-Dunn-Gordon horizontal.  
Air compressor, 81' Blaisdell single cyl. horizontal.  
Belting, various widths and lengths, leather.  
Flower, pressure, No. 0 Sturtevant, 3 1/2" outlet.  
Blower, 24" Connersville rotary pressure.  
Bolt cutter, 15" Kenyon.  
Chain block. Rounds 1-ton.  
Cold saw, Gliem, 22" dia., cap. 6" rd.  
Cold saw, Newton, 20" dia., cap. 4" rd.  
Crane, 10" I-beam, 12'3" span, with Harrington 6,000 lb. chain hoist.

Crane, traveling, 10 ton Pawling & Harnischfeger, 3 motor, 60' span, 220 v., d. c.  
Grinder, Landis, 26"x96".  
Grinder, 10" double end emery, on column.  
Grinder, Diamond 12" d. end bench.  
Grinder, Russell 12" dbl. end bench.  
Grinder, Lancaster 16" d. e. emery.  
Grinder, Barnes 20" wet tool.  
Grinder, 20" Ransom wet tool, 250 volt, d. c.  
Keyseater, 18"x2", No. 2 Baker.  
Lathe, wood, 18"x8' Chapman.  
Motor, 5 h. p. Peerless, 550 volts, d. c.  
Pipe mch., 6" Curtis, engine driven.  
Polishing stand, Diamond No. 2.  
Polishing stand, d. end, 42"x1 1/2" arbor.  
Polishing stand, Cuyahoga dbl. end.  
Rip and cut-off saw, 30"x38" Badger.  
Silent chain belt, 16"x8"x1 1/4" p.  
Vises, Forges, Tanks Lockers.

## SECOND-HAND MACHINERY

### FOR SALE BY

J. L. Osgood,

45 Pearl St., Buffalo, N. Y.

Chucking lathe, 21" P. & J.....\$ 350.

Screw machine, No. 5 W. & S. \$ 375.

Screw machine, 1"x10" P. & W.  
hexagon turret..... 250.

Turret lathe, 12" B. & S..... 200.

### FOR SALE BY

Machinery Warehouse Co.,

1405 West 37th St., Chicago, Ill.

#### POWER CUT-OFF SAW.

1—Power cold cut-off saw, made by the Newton Machine Tool Works, Philadelphia, Pa. Saw arbor is 4" diameter and has travel of about 36". Work is fastened to table which is stationary. Saw arbor is driven past the work. Table is 40"x40" with 5 "T" slots. Feed mechanism is driven by dial friction, 22" diameter. Screw is 3" diameter. Ways for arbor are 6" wide. Greatest diameter of blade which can be used is about 32" diameter. Greatest depth which can be cut is about 16". In stock, ready for immediate shipment, subject to inspection, or we will furnish rebuilt and condition guaranteed.

### FOR SALE BY

Dale-Brewster Machinery Co., Inc.,

541-7 Washington Blvd., Chicago

54-60 Lafayette St., New York

In Stock At Chicago

#### NEW

#### LATHES.

28"x13' Chard, d. b. g., q. c. g.

24"x13' Chard, d. b. g., q. c. g.

20"x11' Chard, d. b. g., q. c. g.

18"x 8' Cisco, d. b. g., q. c. g.

14"x 6' Cisco, s. b. g., q. c. g., (2).

13"x 5' Lancaster engine.

13"x 5' South Bend complete.

12"x 4' 6" Cleveland Precision, (2).

No. 4, 7" swing Hardinge bench.

6"x30" Dalton bench.

No. 4 Elgin bench with slide rest.

#### DRILLING MACHINES.

36" Snyder sliding head.

28" Snyder, sliding head, (3).

25" Snyder, sliding head.

25" Silver, sliding head.

23" Snyder, stationary head, (9).

20" Canedy-Otto, p. f., b. g., (4).

20" Canedy-Otto, wheel and lever.

20" Silver, p. f., back geared.

20" Silver wheel and lever, (2).

No. 101 Canedy-Otto radial, 2 1/2' arm.

14" U. S. sensitive, (4).

14" Champion, (4).

Detroit 1-spindle h. s., b. b.

Detroit 2-spindle, h. s., b. b.

No. 32-D Demco 1-spindle h. s., b. b.

No. 32-D Demco 2-spindle h. s., b. b.

No. 32-D Demco 3-spindle h. s., b. b.

No. 30-A Demco, bench h. s., b. b.

No. 22 Demco bench h. s., b. b.

Various sizes and types bench drills.

#### GRINDERS.

No. 3 Modern universal, (5).

No. 1 Norton cutter and reamer, (3).

Metz, tool and surface.

Hacker "All-Angle" Tool Room.

Partridge double end.

16"x14" Milwaukee, wet tool.

24" Milwaukee, wet tool.

No. A-1-T Grand Rapids, drill.

No. B-2-T Grand Rapids, drill.

No. C-3-T Grand Rapids, drill

#### MISCELLANEOUS.

Arbor presses, Atlas, all sizes.

Hand saw, 10x10 Napier.

Filing mchs., Barry, bench and floor.

Filing machines, Nerco, bench.

Filing machine, motor driven, bench.

Gear hobber, No. 3 Farwell.

Hack saw, 6x6 Peerless.

Hack saw, No. 1 Racine high speed.

Miller, No. 1-B Fox plain.

Miller, No. 2 Cleveland universal.

Punch press, No. 1 Rockford inc.

Punch press, No. 3 Rockford inc.

#### USED

Boring mill, 42" King.

Cold saw, Higley, h. s., saw blade.

Cutter and reamer grinder, complete.

Engine lathe, 14"x6' Hendey.

Milling machine, No. 1 Milwaukee plain.



## SECOND-HAND MACHINERY

### FOR SALE BY

**The Motch & Merryweather Machinery Company,**  
711 Lakeside Ave., N. W., - - - Cleveland, Ohio

**Branches: Cincinnati, Detroit, Pittsburgh**

#### BROACHING MACHINES.

No. 2 LaPointe broaching machines, (2).

#### DRILLING MACHINES.

3-spindle Foote-Burt sensitive, power feed.

4-spindle No. 220 Economy sensitive.

No. 34 Bausch 6-spindle, stationary table, with  $\frac{3}{4}$ " spindle.

Woodward & Rogers 4-spindle sensitive.

Woodward & Rogers 6-spindle sensitive.

#### GEAR CUTTERS.

36"x9" Gould & Eberhardt, horiz. type, auto., with regular equipment, (2).

No. 2 Whiton automatic, with regular equipment.

#### GRINDERS.

No. 6 Bryant chucking, with chucks and wheel heads, (6).

Blanchard vertical surface, 30" chuck, direct motor driven, with Westinghouse 440-volt 3-phase, 60-cycle motors, (5).

Garrigus-Bristol grinders, 10" magnetic chucks, (8).

8"x32" Norton plain grinder, with live spindle attachment.

Live spindle attachment for 10"x36" grinder.

14"x36" Norton plain grinder.

No. 205 Rivett, hand oscillating, on pedestals, with countershaft and extra wheel heads, (8).

No. 120 Gardner combination disc grinder, ball-bearing, with 6 discs and disc press, c. s., etc.

No. 2 Bath.

American twist drill grinder.

8" Fairbanks emery grinder.

No. 1 Landis internal, regular equipment, complete with chucks, (3).

No. 60 Heald cylinder grinder.

No. 12 Gardner duplex disc, 16" discs, without wheel press.

20"x2" wet grinder.

No. 2 Leland & Faulconer, double wheel wet tool, with 24"x1 $\frac{1}{2}$ " wheels.

#### LATHES

16"x 8' Flather, with taper attach.

16"x 8' Monarch.

16"x 8' Lodge & Davis, taper attachment and chuck.

20"x 8' Bradford, (2).

12" Sebastian lathe.

14" Reed high duty stud lathes, (2).

14" American lathe.

#### MILLING MACHINES.

No. 6 Whitney, hand type.

#### TURRET LATHES.

No. 7 Bardons & Oliver, with cut-off slide, wire feed, tool posts, master collet, countershaft and wrenches.

2" Cleveland automatic, with countershaft.

$\frac{1}{2}$ " &  $\frac{3}{4}$ " plain Cleveland automatics, (2).

1"x7" Acme plain chucking machine.

#### MISCELLANEOUS.

Bench press, No. 18 Bliss inclinable, with Benjamin safety operating device.

Brake, 40" Peck, Stow & Wilcox.

Folder, 72" Niagara.

Piston ring machines, Gridley, plain, with full equipment, (3).

Piston ring machines, Gridley, eccentric, with full equipment, (2).

Piston ring machines, No. 1 $\frac{1}{2}$  Potter & Johnston, plain, with full equipment, (2).

Piston ring machines, No. 1 $\frac{1}{2}$  Potter & Johnston, eccentric, with full equipment, (2).

## SECOND-HAND MACHINERY

### FOR SALE BY

**Peninsular Machinery Co., 281 E. Jefferson Ave., Detroit, Mich.**

Drill 10" Hoefer, friction disc.  
Drill, 20" Rockford.  
Drill, 23" Rockford.  
Drill, 24" Fostick.  
Grinder, No. 1 LeBlond universal.  
Grinder, drill and tool, Grand Rapids  
Grinder, No. 3 Blount, emery.  
Grinder, No. 6 Blount, emery.  
Groover, No. 3 Niagara.

Lathe, 16"x 8' LeBlond, eng., q. c. g.  
Lathe, 17"x 6' LeBlond, rap. prod.  
Lathe, 17"x 8' LeBlond, h. d. auto.  
Lathe, 17"x10' LeBlond, automobile.  
Lathe, 20"x10' LeBlond, engine.  
Radial, 3' Fostick.  
Radial, 34" Fostick.  
Shaper, 20" Rockford.  
Shaper, 24" Walcott, crank.

### FOR SALE BY

**The O'Brien Machinery Co., 119 N. Third St., Philadelphia, Pa.**

Bulldozer, No. 4 Williams & White.  
Grinders, Pratt & Whitney vertical surface, (2).  
Grinder, Gisholt, cutter.  
Hammers, 50 lb. upright belt, (2).  
Lathe, 16"x9" Lehmann.  
Lathes, new 18"x8' Rockford, (5).  
Lathe, 18"x9" Lehmann.  
Lathe, 28"x48"x14' McCabe dbl. sp.  
Lathe, 88"x18' Bement.  
Pipe mch., 6" Curtis & C., belt dr.  
Planer, 24"x24"x 6' N. Y. Safety.  
Punch and shear, sgl. end new, cap.  
4x flat, 1" rd., punch 1/2" in 1/2" iron.

Press, o. b. arch, No. 53 Toledo.  
Punch and shear, dbl. end new, cap.  
punch, 1/2" in 1/2"; cap. shear, 1 1/2 rd.  
1/2x5" flat; weight 3,600.  
Punch press, power, deep throat.  
Rifling mch., horiz. boring or rifling.  
wt. about 10,000 lbs.  
Saw, heavy type, cold.  
Shaper, 12' Bement.  
Shaper, 16" Wright.  
Shaper, 16" Smith & Mills, b. g.  
Shaper, 20" Smith & Mills.  
Shapers, 24" Hollingsworth, b. g.  
Spinning lathe, 44" swing, hvy. duty.

### FOR SALE BY

**Herman L. Winterer, 943-53 N. Front St., Philadelphia, Pa.**

#### LATHES.

21"x14' Niles, back geared, (2).  
20"x 8' Putnam.  
19"x 8' LeBlond.  
18"x 8' Pond.

16"x 6' Hamilton, q. c. g.  
16"x 6' Prentice, q. c. g.  
And many others.

#### TURRET LATHES.

3"x36" Jones & Lamson, (2).  
18" Gisholt.  
7"x14" Potter & J. semi-auto., (2).

3"x28" Lodge & Shipley, chucking lathe.  
27" Chucking lathe.

#### DRILL PRESSES.

49" American radial.  
40" Barnes horizontal radials, (2).  
36" Bickford radials, circular base, motor driven, (2).

30" Hamilton radial.  
28" Snyder vertical, (2).  
20" Baker high speed heavy duty, (1).  
Style F Baker.

#### MISCELLANEOUS.

Boring mill, 38" Beaman & Smith.  
Grinder, disc, No. 17 Besly.  
Grinder, disc, 18" Baylon.  
Grinder, No. 14-12"x5' B. & S. plain.  
Grinder, tool room, Heald univ.  
Grinder, roll, 54"x10 1/2" Diamond.

Milling machine, No. 15 Garvin.  
Milling mch., No. 2A Kempsmith.  
Milling mch., No. 2 B. & S. univ.  
Press, Waterbury-F. horiz., 3" stroke.  
Presses, bk. grd. arch, 8" stroke, (3).  
Press, No. 24 Ferracute.

#### BOILERMAKERS' AND SHIP MACHINERY.

Flanging press, 100-150 ton, with extra knockout plunger, platens 7'2" long and 4'2" wide, practically new.  
Shear, 24" Hans Kraut beam, cuts from 3 to 24" beams, H. columns, channels and shapes, practically new.  
Steam hammer, Dudgeon, 1,500 lb. capacity.

Large assortment of General Machinery.

Send for complete list.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Industrial Machinery Corp'n, 99 Hoboken Ave., Jersey City, N. J.**

Air compressor 12x14 Blaisdell, with unloading valve, used.  
Cutting-off machine, P. & W. variable speed, 4½" capacity, used.  
Drill, 4-spindle Allen high speed, new.  
Grinders, 36" Horner wet tool, used, (2).  
Screw machines, Chicago No. 1 automatic and No. 3 automatic, new.  
Screw machines, 2" Cleveland model "A" automatics, magazine attachments.  
Screw machines, hand, 1½" Newark, new, (15).

### FOR SALE BY

**Badger-Packard Mch. Co., 133-139 W. Water St., Milwaukee, Wis.**

#### LATHES.

11"x5' No. 30-E Star.  
14"x8' American, standard, s. b. g.,  
4-step cone.  
16"x8' Flather, quick change  
18"x8' Fifield, loose chg., s. b. g., 4-st. c.  
18"x10' Blaisdell, c. r., solid spdl.  
21" Gisholt turret lathe.  
24" Pond rigid turret lathe.

#### MISCELLANEOUS.

Exhauster, 40" Edwards & Johnson  
steel plate left-hand up discharge.  
Grinder, No. 2 B. & S. univ. cyl.  
Grinder, 72" Holmes auto. knife.  
Grinder, 12"x42" No. 3 Landis univ.  
Grinder, No. 3 Oesterlein "Ohio"  
universal and tool.  
Hammer, drop, 100 lbs.  
Milling mch., No. 6 Brainard, Lin-  
coln type, pwr. longitudinal feed.  
Milling machine, No. 3 Burke, hand,  
with countershaft.  
Oven furnace, No. 1 Stewart, with  
blower.  
Planer, 24"x34"x16" Fitchburg.  
Oven furnace, No. 27 Stewart, with-  
out blower.  
Punch, style M Badger rapid action,  
6" throat, ¾"x3¼" cap.  
Rivet spinning machine, Grant, 110  
v., d. c. motor driven, 3/16" cap.  
Screw mch., ¾"x3¼" Hartford auto.  
Screw machine, 1½" Cleveland auto.  
Screw mch., 2½"x4½" Hartford auto.,  
with c. s.  
Screw machine, hand, ½" cap., with  
six 9/16" hole round turret.  
Shaper, 14" Luther & Gies, with c. s.  
Shaper, 16" Kelly crank, not b. g.

### FOR SALE BY

**Wm. C. Johnson & Sons Machinery Co.,  
1001-3-5 N. Sixth St., St. Louis, Mo.**

#### LATHES.

14" 6' Hendey.  
14"x 6' Lodge & Shipley.  
15"x 6' Von Wyck.  
14"x 6' Whitcomb-Blaisdell.  
16"x 8' American.  
20"x 8' Rahn & Larmon.  
22"x22" Old Style.  
28"x16" LeBlond.  
3"x36" Jones & Lamson.

#### SHAPERS AND PLANERS.

12", 14", 16", 20" and 24" shapers. 36"x36"x8" Hamilton planer.

#### DRILLING MACHINES.

16" Elmore high speed.  
24" Henry & Wright high speed.  
20" Barnes.  
22" Barnes, sliding head.  
4' arm Bickford radial, almost new.

#### MISCELLANEOUS.

Beader, No. 0 Niagara.  
Bolt cutter, 14" National.  
Bulldozer, No. 3 Fisher.  
Fox Monitor lathe, Lodge & Davis.  
Gear cutter, 26" Cincinnati.  
Grinder, disc, No. 2 Gardner.  
Grinder, American, twist drill.  
Grinder, No. 38, plow-share.  
Hammer, 40 lb. Bradley.  
Miller, No. 2 LeBlond plain.  
Miller, Fox, hand.  
Pipe machine, 6" Forbes.  
Press, No. 40 Swaine, arch.  
Press, No. 52 Ferracute.  
Punch & shear, double end, cap. 1"  
in 1", has two 25" throats.  
Saw, No. 12 Higley.  
Screw machine, 1" Pratt & Whitney.  
Shear, 10" Niagara, power square.

## SECOND-HAND MACHINERY

### FOR SALE BY

**The Enterprise Machinery Co.,**

**28-30 S. Clinton St., Chicago**

Boilers, 10 to 150 h. p.  
Compressors, 10 to 1000 ft. and ptbl.  
Disc grinder, 30", like new.  
Drill, 4 spindle Dwight Slate.  
Engines, gas or oil, 3 to 60 h. p.  
Engines, steam, 5 to 250 h. p.  
Pumps, 10 to 1000 gal. pr. m.  
Hammer, Morgan, 1600 lb.  
Lathe, 14"x5' Star, 4" h. s.  
Lathe, 30"x12', compound rest, \$295.

Lathe, 36"x16' hvy. duty trip. b. g.  
Lathe, Fox Monitor, 12 hubs.  
Miller, vertical, 5"x18"x9", \$125.  
Miller, hvy., No. 3 and vert att.  
Miller, Lincoln No. 2, good cond.  
Planer, 36"x36"x12' \$900.  
Radial, 42" No. 5, taper, good cond.  
Roll, 4" cap., 10' belt drive.  
Screw machine, auto., 5/16", \$375.  
500 Other tools. Write for list.

### FOR SALE BY

**Frank Toomey, Inc.,**

**127-131 N. Third St., Philadelphia, Pa.**

#### LATHES.

10"x 4' Prentice, h. s., c. r.  
13"x 7'6" new Carroll-J., pln. chg.  
14"x 6' new Carroll-Jamieson, q. c.  
15"x 6' new Sidney, q. c., swings 17".  
16"x 8' Hendy, q. c., taper attach.  
16"x24' new Rahn Larmon, d. b. g., q. c.

17"x 8' new Sidney, q. c., swings 19".  
19"x 8' new Sidney, q. c., swings 21".  
20"x12' Hendy, q. c., taper attach.  
25"x16' new Sidney, q. c., swings 27".  
28"/48"x14' Harrington extension.

#### TURRET LATHES.

2"x24" Jones & Lamson, cone head,  
complete.

24" Davis chucking,  
No. 1 Bardons & Oliver, screw.

#### VERTICAL BORING MILLS.

60" Bullard, two heads.  
64" Niles, two heads.

36" Newton, car wheel.

#### PLANERS.

36"x36"x 8' Gray, two heads.  
30"x27"x 8' Smith, one head.

27"x23"x 6' Smith, one head.  
18"x 8' x 3' Wheeler, one head.

#### SHAPERS.

16" new Steptoe, b. g.  
20" new Steptoe, b. g.  
24" new Steptoe, b. g.

24" Hendy.  
16" Bement, traveling head.  
16" Barker, traveling head.

#### MILLING MACHINES.

No. 1 Kempsmith universal.  
No. 1 Cincinnati universal.  
No. 1 new American, plain.

No. 0 Steptoe, hand, new.  
No. 2 Burke, bench, p. f.

#### GRINDERS.

No. 1 Fraser universal, new.  
No. 6 Coates, new univ. cutter and  
reamer.  
No. 1 Grand Rapids, new cutter and  
reamer.

No. 1 Landis.  
No. 2 Grand Rapids, new cutter and  
reamer.  
No. 190 Wells.

## Second-Hand Wood-Working Machinery

For a large list of used wood-working machinery, consult the **Wood-Working Machinery List**, a publication similar to this but devoted to the advertising of saw-mill and wood-working machines. A copy may be had on application to the publisher, **A. H. Hitchcock, 1220-1235 Caxton Building, Chicago, Ill.**

## Grand Rapids Specials

Air compressors, 4½x5 Ingersoll-Rand, (2).  
 Boring mills, vertical, 34".  
 Drill, 26" Sibley, sliding head.  
 Drill, 28" Hamilton, sliding hd.  
 Drill, No. 2 Quint 6-sp. turret.  
 Elect. tool post grinder, No. 2 Willey, 110 v., 60 c., 3 p.  
 Gear cutter, 36" G. & E., spur.  
 Grinder, Greenfield, cutter.  
 Groover, No. 518 P.S. & W., pwr.  
 Hack saw, No. 1 Racine.  
 Hack saw, No. 5 Marvel.  
 Hammer, 50 lb. Little Giant, pwr.  
 Hammer, Smith auto., power.  
 Lathe, 16x8 Bogart standard.  
 Lathe, 18x8 Greaves-K. standard.  
 Lathe, 18x10 Cinti. standard.  
 Miller, No. 38 Chicago, hand.  
 Miller, No. 3 heavy, plain.  
 Millers, No. 1-C Fox plain, (2).  
 Miller, No. 25 Bilton plain.

Miller, No. 1½ Valley City plain.  
 Molding mch., portable, Arcade.  
 Presses, No. 3 Consolidated inclinable, (2).  
 Press, No. 3 Consolidated, incl.  
 Press, No. 10 Excelsior, foot.  
 Punch press, No. P-3 Ferracut.  
 Rolls, drawing & forming, Port Huron.  
 Riveter, No. 0 Cleveland electric.  
 Rolls, power forming, No. 400 P. S. & W.  
 Rollfd. for D-3 Ferracut press.  
 Screw mch., 4" American, hand.  
 Setting-down machine, No. 564 P. S. & W., power.  
 Shear, No. 16-P Len., throatless.  
 Shear, cir., No. 278 P. S. & W.  
 Turret lathe, 18" Prentice, gd. hd.  
 Wall radial, No. 51 Canedy-Otto.  
 Welder, spot, No. 140 Toledo.  
 Welding outfit, acetylene.

*Ask for Complete List*

**McMullen Machinery Company**

*"Everything in Shop Equipment"*

**Grand Rapids, Mich.**

## Used Machine Tools for Immediate Delivery

- 1-30" Bullard Vert. Bor. Mill, with 1-5 hole tur. on rail. 80% new.
- 1-20" Foote-Burt Heavy Duty Drill, single pulley drive. 90% new.
- 2-24" Barnes all geared drills, 95% new.
- 2-Spdl. Henry & Wright High Speed Ball Bearing Drills. 70% new.
- 1-25" W. F. & John Barnes Sliding Head Drill Press, with W. and L. G. and P. F.—B. G. and Tapping Attachment. 80% new.
- 1-5" Bickford Radial, arranged for variable spd. motor dr., 60% new.
- 1-No. 1 Adams Automatic Gear Hobber, 65% new.
- 1-No. 3-26" Brown & Sharpe Automatic Gear Cutter, 90% new.
- 1-24" Fellows Automatic Gear Shaper, 65% new.
- 2-36" Fellows Automatic Gear Shapers, 65% new.
- 1-12x36 Landis Universal Grinder, 70% new.
- 1-No. 12 Modern Plain Grinder, complete, with special attachments for internal and external grinding, 80% new.
- 1-No. 2 Mitts & Merrill Keyseater with special equipment, 90% new.
- 2-16" Warner & Swasey Universal Fox Turret Lathes, with set over tail stock. Chasing Bar with hobs and chasers. 90% new.
- 1-50x22 Pittsburgh Lathe, tr. grd. Swings 51½". Taper att. 70% new.
- 1-26x26x6 Gray Planer, with 1—head on the cross rail. 90% new.
- 1-No. 17 Williams & White double end compound punch and shear with a number of attachments, 95% new.
- 1-6" Nicholson-Waterman Horizontal Cylinder Boring and Facing Machine, Motor Driven.

**M. J. Walsh Mchy. Co.,** 141 Sycamore St., Milwaukee, Wis.

**New Boston Show Rooms**  
**W. H. J. Fitzgerald & Co.**  
**30 Oliver St., Boston**

- 1 Foote-Burt Company No. 23 Heavy Duty Drill, 20" swing, single belt drive, capacity  $\frac{3}{8}$ " to  $1\frac{1}{4}$ ", guaranteed good as new.
- 2 No. 2 Warner & Swasey Turret Screw Machines, plain head, automatic chuck, bar feed, hand longitudinal feed to cut-off, with power feed to hexagon turret.
- 2 No. 1 Warner & Swasey Turret Screw Machines, plain head, automatic chuck, bar feed, lever feed to cut-off only, automatic chuck capacity  $\frac{3}{8}$ ".

These machines are in A-1 condition.

**Six  $\frac{1}{4}$  Inch Automatic Screw Machines**  
(Stehli Patent)

Each fitted with screw slotting attachment. Manufactured by Hartford Machine Screw Company. These machines adapted to the rapid production of all kinds of small screws, bushings, studs, etc. Condition, good as new.

We have the following used equipment.  
*It's attractive in price.* Machines below are  
a few suggestions from our large stock.

**Lathes**

- Flather 20"x10', compound rest.
- Gisholt 21" turret lathe.
- LeBlond 25"x10', heavy duty.

**Milling Machines**

- Cincinnati No. 1 $\frac{1}{2}$  plain b. g.
- Garvin No. 14 plain b. g.
- Brown & Sharpe No. 2 plain b. g.

**Shapers**

- Ohio 20" crank shaper.
- Cincinnati 24" back geared cranks
- Fitchburg 14" traverse head.

**Screw Machines**

- Southworth No. 2 hand screw machine, 1" cap.
- Brown & Sharpe No. 0-G, automatic.
- National-Acme No. 54 automatic.

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**Boston, Mass.**

"Machine-Tool Values"

# The Machinery Exposition of America!!!

**250 Ton Mesta Steam Hydraulic Quick Acting Forging Press, Single Frame Type, Good As New, *Immediate Delivery*, full particulars on application.**

**We have every MAKE, SIZE and DESCRIPTION of Machine Tools and Metal Working Machinery.**

**Over 500 MACHINES on hand for IMMEDIATE DELIVERY**

**The following are merely selections at random:—**

- 14' Standard Vertical Boring Mill, two swivel heads.
- 84" Sellers Vertical Boring Mill, two swivel heads.
- 52" Bridgeport Bullard Vertical Boring mill, two swivel heads.
- 36" Niles Vertical Boring Mill, two swivel heads.
- 36" Baush Vertical Boring Mill, two swivel heads.
- 5" Barrett Horizontal Cylinder Boring Machine, almost new.
- 3" Rochester Horizontal Boring Mill, belt driven.
- 10' Bement & Sons Boiler Plate Rolls.
- Two (2) 16"x8' Reed Prentice Engine Lathes.
- 30"x12' Israel Johnson Engine Lathe, triple grd., face plate dr.
- 30"x24' Lodge & Shipley Engine Lathe, quick change gear, etc.
- 32"x17' Pond Engine Lathe, triple geared, face plate drive.
- 38"x14' Fay & Scott Engine Lathe, heavy, good as new.
- 48"x20' Fifield Engine Lathe.
- 50"x20' Pond Engine Lathe, triple geared, face plate drive.
- 52"x22' Wood Light Engine Lathe, geared, face plate dr., hvy.
- 10" New Haven Slotter, circular table.
- 30" Bullard Draw Cut Slotter.
- 48"x36"x16' Detrick & Harvey Open Side Planer, three heads.
- 28" Hendey Shaper.
- 3' Gang Radial Drill.
- 6' Baush Radial Drill.
- 6' Bickford Radial Drill, tapping attachment.

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- One 30"x6" Buffalo Closed Pattern Purifier.
- One 24"x6" 8" Open Pattern Feed Water Heater.
- One 22"x69" Allis-Chalmers "Reynolds" Closed Pattern Feed Water Heater.

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133-139 W. Water St.,

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## First Class Used Machinery IMMEDIATE DELIVERY

- 36"x36"x24' L. W. Pond Planer, two heads on cross rail.
- Landis 12"x66" Plain Grinder with Universal Headstock.
- Landis 10"x30" Plain Grinder with Universal Headstock.
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- 24" Cincinnati High Speed Shaft Driven Upright Drill with gear box and tapping attachment.
- 15 H. P. Monitor Planer Control without Motor, 110 volt, D. C., First Class Condition.

### D. C. MOTORS

- 1-7½ H. P. Westinghouse.....220 volt constant
- 1-5 H. P. Reliance .....220 volt constant
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### Immediate Delivery

1-33"x33"x10' Knecht (Bickett) Planer, 4 heads.....	\$3750.
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1-No. 57 Sellers Heavy Grd. Punch, 34" throat, 1¼"x1¼".....	2200.
1-Wals & Roos Combination Angle and Splitting Shear; cuts 4"x4"x½" angles and splits ½" plate.....	900.
1-Heavy Beveling Shear, capacity ¾" plate.....	350.
1-Set 84" Bending Rolls, capacity ¾" plate.....	1350.
1-350 ton Niles Hydraulic Wheel Press, 84" capacity.....	2200.

### RADIAL DRILLS.

- 1-4' American plain, g. b. drive.
- 1-3' Dreses plain, g. b. drive.
- 1-Heavy duty Baker drill, g. b. drive, Style 2 M.

### AUTO. TURRET LATHES.

- 1-3" P. & W., geared head.
- 5-2x24 J. & L., geared heads.
- 3-3x36 J. & L., geared heads.
- 4-2"x24 Pratt & Whitney, grd. hds.
- 1-2" Cleveland automatic, 5 hole.
- 1-24" Cleveland auto., Model A.
- 1-14" W. & S. Turret.

### MILLING MACHINES.

- 2-No. 2 Cincinnati universal.
- 2-No. 4 Cincinnati plain.
- 1-No. 3 B. & S. plain, s. p. drive.
- 1-No. 4 Cincinnati vert., s. p. drive.
- 1-No. 1 B Milwaukee plain, s. p. dr.
- 1-No. 2 B Milwaukee plain, s. p. dr.
- 1-No. 2 A Milwaukee plain, s. p. dr.
- 1-No. 2 B hvy. pl. B. & S., s. p. dr.
- 1-No. 2 Brown & Sharpe plain.
- 2-No. 1 Y Brown & Sharpe.
- 2-No. 10 Pratt-W. hand millers.
- 1-No. 3 B. & S. vertical, s. p. drive.

### ENGINE LATHES.

- 1-12"x6' Reed.
- 1-14"x6' LeBlond, quick change.
- 1-14"x6' Pratt & Whitney.
- 1-14"x6' Lodge & S. patent head.
- 1-14"x6' LeBlond, quick change.
- 1-18"x8' LeBlond.
- 1-20"x8' L. & S., qck. ch. tap. att.
- 1-20"x10' American, d. b. g. tap. att.
- 1-20"x10' Bridgeport, taper attch.

### SHAPERS.

- 1-16" Smith & Mills, crank.
- 2-20" Stockbridge, B. G. Crank.
- 1-20" American, b. g. crank.

### BROACHING MACHINES.

- 3-No. 3 A Lapointe.

### GEAR CUTTERS AND HOBBER.

- 1-No. 448" Brown & Sharpe auto.
- 1-No. 326" Brown & Sharpe auto.
- 1-No. 13 B. & S. spur and bevel.
- 2-No. 6 Lees Bradner auto.
- 1-No. 436" Cincinnati auto.
- 1-36" Fellows Gear Shaper.
- 1-24" Schuchardt & Schutte.
- 3-Ingle Tooth Rounders.

### GRINDERS.

- 3-No. 70 Heald, internal.
- 1-No. 60 Heald, internal.
- 1-No. 3 B. & S. universal.
- 1-No. 24 Bath, universal.
- 1-10"x50" Norton, plain.
- 4-10"x20" Landis, plain.
- 2-6"x48" Pratt & Whitney, plain.
- 1-12"x32" Landis, plain.
- 1-12"x24" Modern grinder.
- 1-10"x24" Landis, plain.
- 2-6"x32" Norton, plain.
- 1-3" P. & W. vertical surface grinder with magnetic chuck.

### AIR COMPRESSORS.

- 1-13"x8"x12" Curtis vert. dbl cyl.
- 1-14"x9"x8" Herron & Burry horizontal double cylinder.

### BOLT THREADING.

- 1-1½" Howard.

### MULTIPLE DRILLS.

- 1-4 Spindle Barnes, 22", b. g. & p. f.
- 1-4 Spindle Barnes sensitive.
- 1-3 Spindle sen., Taylor & Fenn.
- 1-No. 4 32-spindle Fox.
- 1-No. 3 Fox with 6 spindles.
- 1-2 Spindle Allen sensitive.
- 1-6 Spindle Detroit sen. horizontal.

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## Planers

18-22-26-30-32-36-42-54-60" between housings; 1-2-3 and 4 heads.

## Vertical Boring Mills

30", 36", 52", 76" and 10'.

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24", 3", 4"; also 5" Barret type.

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24", 3 and 6'-Plain and Universal.

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12"-24"-36" and 42"; also 3 and 6 spindle.

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Various sizes from 16" to 102" swing, 6' to 40' beds.

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2x24", 20x6", 20" also 34".

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48x36x14' Ingersoll 4 heads; 20"x7' Brainerd.  
36" Shaper; 54" Slotter.

Also Punches and Shears, Gear Cutters, Grinders,  
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INDUSTRIAL FURNACES, BLOWERS  
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233 BROADWAY, NEW YORK, N. Y.

# Immediate Shipment

7"x30" CANTON, Semi-Precision Lathe, 3 step cone, back grd., compound rest, screw cutting, change gears. Good as new.  
 15"x 6' GLOBE Engine Lathe, C. R., C. S., etc., NEW.  
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 14"x 6' CHAMPION Double Head Lathe.  
 20"x10' FLATHER, Q. C. G. Engine Lathe, chucks, tools, etc.  
 38"x24' Niles-Bement-P., Triple Geared, Motor Driven, Variable Speed Motor, Q. C. G., Taper Att., 18' centers. A-1.  
 96"x32' Triple Geared, Face Plate Dr. Engine Lathe, 21' centers.  
 No. 1 VALLEY CITY Full Universal Milling Machines.  
 No. 1 VALLEY CITY Plain Manufacturing Millers.  
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 PRATT & WHITNEY, 8 Spindle Multiple Drill, Cap. 1" drills, working from 12" to 30", 30"x48" table. Good condition.  
 No. 6, FOX, 20 Spindle Multiple Drill.  
 24" CARLTON, Sensitive Radial Drill, Good as new.  
**Large Stock Sensitive, Stationary Hd. and Sliding Hd. Drills.**  
 20" SMITH & MILLS Crank Shaper, Very Good.  
 20" KELLY, Back Geared Crank Shaper.  
 15" KELLY, Geared Crank Shaper.  
 Slitting Shear, LENNOX, 3" cap., Dbl. Housing Type, 72" Thrt. Bevel Shear, WANGLER, 3" cap., either Belt or Motor Driven.  
 72" Pyramid type Power Bending Rolls, SCULLY, cap. 1" A-1.  
 26" Vertical Boring Mill, CINCINNATI, Turret Head, Universal Chuck Table, Geared Feeds.  
 NILES, Horizontal Boring, Drilling and Milling Machine, 4" bar, compound table, bores to center of 60", motor driven. First class cond.  
 No. 5-B, Vertical Milling Machine, BECKER, With Power Rotary table, Late Type.  
 Drawing Press, No. 4 DDG, FERRACUTE, Dbl. Acting, B. G.  
 No. 15 STOLL, Inclinal Power Press.  
 2-No. 14, STOLL, Inclinal Power Presses.  
 Grinder, No. 3 LANDIS, Universal, cap. 20"x42". A-1.  
 Grinder, No. 1 LANDIS, Universal, cap. 10"x24". A-1.  
**Large Stock Double Emery Grinders, Wet Tool Grinders, Etc.**

## Miscellaneous Equipment

No. 1 LAPOINTE Broaching Machine.  
 CLEVELAND, 4" Automatic Worm Miller.  
 GRANT Motor Driven Rivet Spinning Machine.  
 1" NATIONAL, All Steel, Wedge Grip Bolt and Rivet Header, new.  
 No. 1 GARVIN Automatic Tapping Machine.  
 9"x8" INGERSOLL RAND Belt Dr., Sgl. Stage Air Compressor.  
 15 h. p. FAIRBANKS-MORSE Horizontal Gas Engine.  
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We also have a good stock of Sheet Metal Machinery, Woodworking Machinery, Spot Welders, etc.

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## D. M. Osborne Machinery Co.

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**"New York's Greatest Clearing House—J. J. McCabe Lathe & Machinery Corporation"**

The greater meaning of Good Tools was never more manifest than right now—

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## Both NEW and USED

148

### NEW PUNCHES AND SHEARS, SINGLE END (INTERCHANGEABLE) FOR IMMEDIATE SHIPMENT

36" Throat. Weight 30,000 lbs.  
50" Throat. Weight 40,000 lbs.  
Punching capacity: 3" hole thru 1" Tube and Manholes 134"x74"x4"  
Shearing capacity: 15" Plate; 3" round 8x 18 flat bars, 6x6x1 angles.

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4-12" stroke, Plain.  
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6-20" stroke, Back-gear.  
3-25" stroke, Back-gear.  
4-25" stroke, Spd.-box, Single Pulley Dr. one on each housing, complete with countershaft or arranged for motor drive. Equipped with a number of improved features not found on any other planer type Milling Machine built.

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"Chambersburg" Bull, 8' gap, with overhead Crane, Hoist, Accumulator, Pump and complete outfit; still set up as it had been used.

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"Wickes Bros." 14' 3" between housings—Top Roll 14" diam, counterbalanced, raised and lowered by power. Lower Rolls 10" diam. Drop-end housing. Motor-driven, with Motor and Controller complete.

Standard pattern, 8' 9" between housings, Top Roll 11" diam. Lower Rolls 9" belt driven.

### ROLL-FLAT PULL

Bevel-Shears—"Lennox" Rotary, 1" cap. Small Splitting Shears, Punch—14" Throat, 4" capacity. Punch—Portable, Pella.

### BORING MACHINES

Horizontal 3" bar, Fitchburg.  
Upright, 36" swing, B. & S. Turret head.  
Car-wheel Borer, 42" swing, Bement-Miles.  
Car-wheel Borer, 54" sw., Niles Tool Wks.

### PLANERS

54"x12, Pond, 4 Heads.  
42"x 9" New Haven, 1 Head.  
32"x10" New Haven, 1 Head.  
30"x 6" Pond, 1 Head.  
24"x 6" Gray, 1 Head.

### OTHER TOOLS

Shaft Straightener, up to 4 1/2" diam., 25' length, Medart.  
Nut Tapper, 8-spindle, Acme. Bement.  
Cutting-off Machine, 10" cap. Bement.  
Cold chisels, 100 pieces. Fitchburg-Lanes.

Gas Engine, 15 H. P., Fairbanks-Morse.  
Boring Bar, 4 1/2" diam., 8' long with sliding head and inserter screw.  
GRINDERS



## WE OFFER FOR IMMEDIATE SHIPMENT

### 60 CYCLE-2 PHASE

1-100 h. p.- Allis-Chalmers- 570 r. p. m.  
2-100 h. p.- " - - 1750 r. p. m.

### 60 CYCLE-3 PHASE

1-100 h. p.- G. E. Slipring - 720 r. p. m.  
4- 50 h. p.- G. E. KT - 900 r. p. m.

### 25 CYCLE-3 PHASE

10- 15 h. p.- G. E. KT - 750 r. p. m.  
5- 30 h. p.- G. E. KT - 750 r. p. m.  
5- 50 h. p.- G. E. KT - 750 r. p. m.

Motor Generator Set, Accessories and Switch-  
board 85 KVA, 900 r. p. m., 3 ph., 60 cy. Crock-  
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to 357 amp. 230 volt Generator.

5- 15 h. p. 230 volt, 800 r. p. m. "RC" G. E.  
Motor complete with controllers.

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 **THE W.G. NAGEL ELECTRIC CO.**   
TOLEDO, OHIO

## HONEST SERVICE

### NEW MACHINES

No. 32-B Demco Floor Type Drill Press, two spindle.  
No. 32-B Demco Floor Type Drill Press, three spindle.  
14"x8" Champion Q. C. Lathe with taper attachment.  
No. 4 Bardons & Oliver Hand Screw Machines, complete with  
power feed to cut-off, power feed to turret and regular equipment.  
No. 2-B Washburn Shops single spindle Drill.  
Webster & Perks No. 1 and No. 2 Floor Type Grinders.  
No. 2 Grand Rapids Universal Grinder.  
6x6 Peerless High Speed Metal Saw.  
No. 2 Toledo and No. 4 Defiance Hand Screw Machines.  
Simmons Premier Universal Tool and Cutter Grinder.

### USED MACHINES

No. 2 Brown & Sharpe Chucking Machine.  
48" Newton Portable Slotter.  
60"x8" Newton Rotary Planer.  
Newton Horizontal boring Mill, for spindle.  
No. 1 two spindle Garvin Tapping Machines.  
12"x6" Gould & Eberhardt Gear Hobbers.  
24"x12" Gould & Eberhardt Gear Hobbers.  
No. 3 Brown & Sharpe Gear Cutters, 26" and 36".  
No. 2 J. N. Lapointe Tool Co., double broaching machines.  
W. & S. Hollow Hex. Turret Lathe, bar and chucking, good cond.  
No. 1 Brown & Sharpe Automatic Screw Machine.

**THE BIGGS-WATTERSON CO., . - CLEVELAND, O.**

# ReMANUFACTURED - (ORIGINATED BY US) - MACHINE TOOLS

FOR QUICK SHIPMENT

*At Chicago—The Great Machinery Center*

## PLANERS

- 1-76"x49"x18' Woodward & Powell,  
2 heads.
- 1-48"x49"x18' Sellers, 1 head.
- 1-42"x36"x14' Cincinnati, 2 heads.
- 1-36"x36"x17' Powell, 2 heads.
- 1-36"x36"x13' Sellers, 2 heads.
- 1-30"x30"x10' Cincinnati, 2 heads.
- 1-26"x26"x 6' Gray.
- 1-26"x26"x 6' American.
- 1-24"x24"x 6' Hamilton.
- 1-24"x24"x 6' American.
- 1-22"x22"x 4' Pond.

## LATHES

- 1-60"x22' New Haven Triple Grd.
- 1-60"x16' Fifeild.
- 1-36"x20' New Haven.
- 1-18"x 6' American, Q. C. G.
- 1-16"x 6' Walcott & Wood.
- 1-14"x 6' Fitchburg.
- 1-13"x 6' Willard, D. B. G.
- 1-13"x 5' Prentiss, taper.

## TURRET & SCREW MCHES.

- 1-2"x24" Jones & Lamson.
- 1-11" American Screw.
- 6-24" Gisholt.
- 1-34" No. 9 Foster.
- 1-22" Steinle.
- 4-21" Gisholt.
- 1-18"x6' Lodge & Davis Cabinet  
Turret.
- 1-13" Foster.
- 1-12" Foster-Kimball.

## RADIALS

- 1-54' Baush Plain.
- 1-5' Putnam Plain.
- 1-5' Universal Radial.
- 1-4' Niles Full Universal.

## BORING MACHINES

- 1-6" bar Sellers Cylinder Borer.
- 1-Beaman & Smith Duplex Cylin-  
der Boring and Milling.
- 1-34" Bullard.

## MILLING MACHINES

- 1-No. 4 Beaman & S. Open S. Vert.
- 1-No. 15 Garvin Plain.
- 2-No. 32 Kemp Smith Lincoln.
- 2-No. 14 Garvin Plain.
- 2-No. 14 Garvin Plain Mfg.
- 1-No. 1 Cincinnati Plain.

## GEAR CUTTERS

- 1-11" Gleason Generator.
- 1-No. 2 Robey-Smith Bevel Planer.
- 1-No. 1 Robey-Smith Bevel Planer.

## GRINDERS

- 1-Wells Cutter Reamer.
- 1-No. 1 Landis Internal.
- 1-4"x20" Morse.
- 1-6"x30" Norton Plain.

## MISCELLANEOUS.

- 1-No. 3 Lapointe Broaching Mch.
- 1-No. 104 Consolidated D. C. Press.

*Write for our Green List describing these and many others*

**HILL, CLARKE & CO. OF CHICAGO**  
649 W. WASHINGTON BLVD., CHICAGO, ILL.

## Second Hand Machinery

### DRILLING MACHINES.

No. 117 Moline heavy single spindle, (2).  
Allen four spindle high speed ball bearing, New.

### GEAR CUTTER.

48" Gould & Eberhardt spur gear cutter, heavy type.

### ENGINE LATHES.

15"x6" Johnson, comp. r., taper.  
16"x6" Fifield, rise and fall rest.  
21"x10" LeBlond cr.s. lathes. (2).  
24"x7", with turret on shears.  
32"x16" Fay & Scott, c. r., turret on shears, turret tool post.  
60"x26" Thayer-Houghton, c. r., triple geared, faceplate.

### PIPE MACHINES.

2" Jarecki.

2" Stoever.

### PLANERS.

24"x24"x6" Rockford, New.

### TURRET LATHES AND SCREW MACHINES.

24"x26" Acme flat turret lathe, with bar and chuck equipment.  
3"x36" Jones & Lamson, with bar equipment.  
1" Cleveland automatic.  
1", 1 1/2" Hartford automatics.

### MISCELLANEOUS.

Cold saw, 12" Burke.  
Punch & sh., No. 1-A New Doty.  
Shaper, 12" Springfield, plain crank.

## Marshall & Huschart Machinery Co.

17 S. Jefferson St., Chicago, Ill.

915 Chemical Bldg., St. Louis, Mo.

## Machine Tools Immediately Available

One Cincinnati No. 3 double back geared Universal Milling Machine with pump, spiral universal centers, and vertical spiral cutting attachment, excellent condition.

One Oesterlein No. 30 plain back geared Milling Machine with universal centers, excellent condition.

One Milwaukee No. 1 back geared Universal Milling Machine, all feeds, cone drive, excellent condition.

One Garvin No. 11 Plain Milling Machine, practically new.

One Fox Plain Milling Machine.

Two Gisholt Turret Lathes, 21" swing, taper attach., excellent cond.

One Fifield 30"x10" triple geared Engine Lathe, excellent condition.

One Pratt & Whitney 24"x6" Planer, excellent condition.

One Whitcomb-Blaisdell 26"x8" second belt drive planer, two heads on the rail, new.

One Pratt & Whitney No. 6 Heavy Planer Type Slab Miller.

One Chandler Planer 36"x12" with two heads, excellent condition, arranged for motor drive.

## Factory & Mill Supply Co.

137 Oliver St., Boston, Mass.



# Good Used Tools

## BORING MACHINES.

3-spindle Moline adjustable center cylinder borer.

## DRILLING MACHINES.

1-spindle Henry & Wright ball bearing, sensitive, 24 swing.  
4-spindle 14" Foote-Burt.  
6-spindle No. 4 Quint turret.  
6-spindle Gardam.  
4-spindle 26" Barnes, sliding head gang drills, 3 jaw chucks, (2).

14-spindle No. 6 Fox.  
25" Blaisdell sliding head drills, (2).  
28" Snyder, sliding head, (2).  
23" Rockford, sliding head, 1" chuck fitted.  
10" Barnes sensitive, (3).

## GRINDERS.

BX Yankee tool grinder.  
12x60 Landis universal.  
No. 60 Heald cylinder.  
10x36" Norton.  
No. 4 Van Norman internal.  
No. 11 Rivett, oscillating.  
No. 6 Bryant internal.

48"x6" Springfield, surface.  
"H" Point Yankee twist drill.  
No. 14 Cinn. cylinder and internal grinding attach. Surface and gear cutter grinding attachment.  
No. 70 Heald internal, type F, wheel head and collet chuck.

## LATHES.

11"x4' Mann.  
12"x5' Robbins.  
14"x6' Prentice Brothers, compound rest.  
14"x8' Porter, c.r., p.c.f., chuck fitted.  
18"x8' Perkins.  
20"x10' Putnam, plain rest, power cross feed.

20"x12' Fifield.  
24"x20' American, quick change.  
26"x12' Putnam, d. b. g., c. r.  
30"x10' Gleason, plain rest, power cross feed.  
38"x20' New Haven.  
56"x24' Wood Light.  
84"x30' Putnam.

## MILLING MACHINES.

No. 3 Fox plain, power feed.  
Rivett swivel miller.  
No. 3 Van Norman duplex.  
No. 12 Brown & Sharpe manufacturing miller.

Grant manufacturing.  
No. 2 Pratt & Whitney, Lincoln miller.  
No. 2 Pratt & Whitney hand.  
No. 2 Garvin duplex.

## PLANERS.

20"x20"x 4' Pease.

24"x24"x 6' Flather, head.

## SCREW MACHINES.

11" No. 54 National Acme auto.  
20x7 Fay & Scott, turret.  
24" Gisholt, turret.  
4" style "A" Cleveland auto., (2).  
7" Cleveland automatics, (32).  
No. 7 Bardons & Oliver.

1" Rivett, wire feed.  
1" Pratt & Whitney.  
1" National Acme automatic.  
1" Rivett, plain turret.  
No. 1 Brown & Sharpe, hand feed, (3).

## GEAR CUTTERS.

20x10 Cincinnati.

No. 2 Whiton.

## MISCELLANEOUS.

Brake, 4' Ohl, double cam.  
Broaching machine, No. 2 Lapointe.  
Cutting-off machine, 6" Hurlbut & Rogers.

Keyseater, No. 1 Davis.  
Pinion cutter, No. 1 Slate.  
Wire straightener, No 1 Shuster.

# Henry Prentiss & Company, Inc.

## Singer Building, New York

### Formerly Prentiss Tool & Supply Company

## Desirable Tools Available For Immediate Shipment

- 1—No. 0—3" Bar Fostick Horizontal Boring Mill.
- 1—No. 10—3½" Bar Beaman-Smith Hor. Bor. Mill.
- 1—No. 10 Bryant Chucking Internal Grinder.
- 1—4-spindle Moline Cyl. Boring Machine.
- 2—No. 2 P. & W. Single Spindle Die Sinkers.
- 1—18,000 lbs. Waterbury-Farrel S. S. Trimming Press, geared with side shear.

We also carry in stock Steam Pumps, Electrical Equipment,  
and are in the market to purchase equipment of all kinds.

**Riverside Machinery Depot**  
29 St. Aubin Ave., Detroit, Mich.  
Telephone, Edgewood 1582

## Some Real Bargains

### Punches & Shears

- |                               |                              |
|-------------------------------|------------------------------|
| 50" tht. sgle. end 1¼x1¼ cap. | 12" tht. dble. end 1 x1 cap. |
| 42" tht. sgle. end 1 x1 cap.  | 7½" tht. dble. end ¾x¾ cap.  |
| 36" tht. sgle. end 1 x1 cap.  | 6" tht. dble. end ¾x¾ cap.   |
| 34" tht. sgle. end 1 x1 cap.  |                              |

### Lathes

- 1—Used 24"x12" LeBlond (Good as new).
- 1—Each (New) Sidney Heavy Duty 27", 25", 19", 17" and 15" by 6', 8', 10', 12' and 14' beds. All 3-Step Cone D. B. G., Q. C.

### Brakes

- Dries & Krump (Hand) 6 ft. for 16-Gauge.
- Scully (Power) 6 ft. for 3/16 Iron.

### Bulldozers

- Williams & White Nos. 2, 4, 5 and 6.

### Welders

- 1—Spot Welder "Vollans" Type K. S. 220-Volt, 60-Cycle.
- 1—Butt Welder "National" ¾"x¾" Cap. 220-Volts, 60-Cycle.
- 1—Tire Welder Long & Allstatter, Cap. up to 3½"x¾" Tires.

We have five hundred machines on our floor.

Send us your inquiries.

**Wayne Machinery Company**  
Fort Wayne, Ind.

## Contract Work Wanted

This department is exclusively for the use of those desiring to secure contracts for anything in the line of foundry or machine work, including press work, dies, jigs, fixtures, gears, die castings, drop forgings, screw machine products, springs, bolts, nuts, rivets, etc. Advertisements are to be set with side headings as shown, and with such display as may be appropriate to the copy used. Rates: one-eighth page, per month, \$4.

**Gauges, Dies,  
Dies, Tools  
and Light  
Machinery**

### **The Model Tool & Gauge Co.**

**61 Foote St., New Haven, Conn.**

Quick deliveries on gauges, jigs, dies and tools. Light machinery built on contract. Send us your specifications. We shall be pleased to quote.

**Dies  
Tools  
Special  
Machinery**

### **Robbins, Gamwell & Co.**

**Pittsfield, Mass.**

Accuracy and efficiency in gages, dies and special machinery, is our specialty.

**Gray and  
Malleable  
Iron Castings  
Die Castings**

### **Lough Brothers**

**90 West Street, New York City**

Gray iron castings, one ounce to twenty tons. Malleable iron castings. Die castings in aluminum, tin and zinc alloys.

**Dies  
Gauges  
Fixtures  
Special  
Machines**

### **The Steber Machine Co.**

Established 1891 **Utica, N. Y.** Incorporated 1906

We have made a specialty of accurate work for the past 27 years.

**Drop  
Forgings  
(All Kinds)**

### **Bonney Vise & Tool Works, Inc.** **Allentown, Pa.**

**Quick and Accurate Drop Forging and Finishing**

Good tools, good men, and good management insure precision and promptness. Investigate; when you know our facilities and our record you'll want our service.

**Pressed and  
Stamped  
Steel Parts**

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**Is Your  
Equipment  
All Busy?**

Why not get in some special work to fill in the idle time? Let the manufacturing public know what you can do, and what machinery you have to do it with. Space in this department costs but little, and covers the metal manufacturing field as with a blanket. Why not try it?

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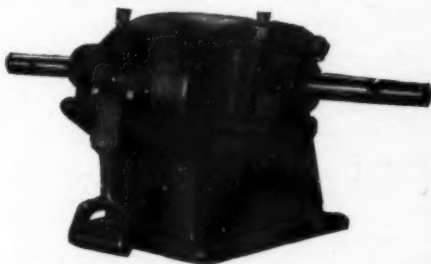
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Belts from below. Insures freedom from belt dangers. Down-draft of the belt against main bearing results in smooth running regardless of lost motion.

The top of machine is hinged at the rear, to permit of raising or lowering. Starts and stops instantly by a single movement of the self-locking lever. No clutches, idlers, loose pulleys or shifting belts.

Built like a machine tool, for quick control and for smooth running at high speeds without vibration and with the least consumption of power. Economizes floor space. Saves belts. Meets all safety and hygienic requirements.

*Write for Folder 1226 for complete description and further illustration*

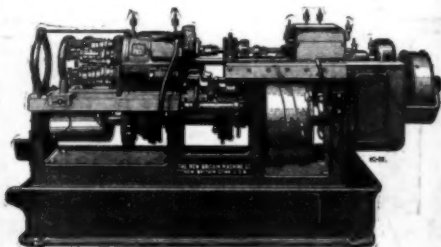


THE  
New Britain Machine  
Company  
New Britain, Conn., U.S.A.



# **"New Britain" Six-Spindle Automatic Screw Machine**

**Increases Output 50 to 200%  
And Saves Cost in Proportion**



Six spindles, like six pairs of hands, will easily do some kinds of work complete which a fewer number cannot do at all without further help or rehandling.

Six spindles, like six pairs of hands, permit a greater subdivision of simpler work, so that it can be finished in much less time.

Six spindles, *unlike* six pairs of hands, cost no more to operate than a fewer number. The machine draws no wages. It is like employing six men at the cost of three, or four, or five, insuring a much greater output without adding to the daily expense.

*But that is not the only point of superiority  
Write for further particulars and proofs*

**The New Britain Machine Company**

**Automatic  
Screw and Chucking  
Machines**



**New Britain,  
Connecticut,  
U.S.A.**



